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Maryland Pharmacist

MENTORSHIP PROGRAM LAUNCHES

PATIENT SAFETY AND CLINICAL PHARMACY SERVICES COLLABORATIVE (PSPC)

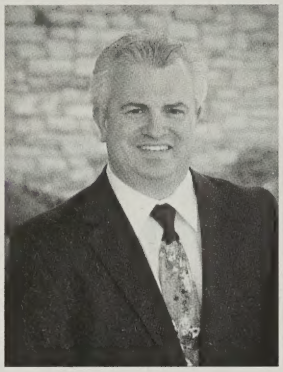
SCRIPT YOUR FUTURE

MARYLAND POISON CENTER TURNS 40

GLOBAL BRIGADE GOES TO PANAMA

CONTINUING EDUCATION: DABIGATRAN

MARYLAND PHARMACISTS ASSOCIATION JOURNAL | SPRING 2012



Neil Leikach
President

With summer just around the corner these last few months have been a time to reflect on the activities and accomplishments of the Association for the first half of 2012. These include the MPhA/MD-ASCP Mid-Year meeting, 13th Annual Legislative Day, and APhA Meeting and Exposition in New Orleans. The year kicked-off with the Mid-Year Meeting that was held in conjunction with MD-ASCP at the Maritime Institute in Linthicum in February. This event drew pharmacists from all areas of the state with a record-breaking attendance of more than 280 participants! Attendees all agreed that the networking opportunities between CE sessions were a great way to share ideas and catch up with old friends.

Also in February, MPhA collaborated with members of the Maryland Pharmacy Coalition (MPC) for the 13th Annual Legislative Day. Once again, close to 300 pharmacists and student pharmacists, donning their white coats, went to Annapolis on a cold rainy morning with the goal of meeting and educating legislators on the most pressing issues currently facing our profession. Thanks to MPC whose membership is made up of the Maryland Pharmacists Association, Maryland Branch of the American Society of Consultant Pharmacists, Maryland Pharmaceutical Society, Maryland Society of Health System Pharmacists, and Student Government Associations from the University of Maryland School of Pharmacy Baltimore, University of Maryland School of Pharmacy Eastern Shore, and University of Notre Dame of Maryland School of Pharmacy, organizations united to ensure that all 47 legislative districts understand what is important to us and to the public during the legislative session. While MPC members may not always agree on all issues, MPC brings us together for consensus on the policies that matter most.

In March, I had the pleasure of attending the American Pharmacists Association Opening General Session in New Orleans where I was part of the audience joining in the recognition of one of our members, Cynthia Boyle, who received the prestigious Gloria Niemeyer Franke Leadership Mentor Award. Also during that session, MPhA member Cherokee Layson-Wolf was recognized as a Fellow of the APhA. During the course of the week, Hoai-An Truong, MPhA Trustee and Co-Chair of the Professional Development Committee, along with other team members of the HRSA PSPC PCC team of which MPhA is a partner, presented at the MTM Practice Pearls Session. More on the this very special program is reported on page 2.

On a personal note, I want to thank you for the visits, phone calls, emails and Facebook messages that I received from MPhA members after my father, Henry Leikach, passed away in January. Following in my father's footsteps as a pharmacist has been an honor. He set the example of what a great pharmacist and man can be if you put effort into what you do.

Finally, it has been an honor to serve as MPhA President and as I turn the reins over to our President-Elect, Brian Hose, I look forward to continuing my work with the organization as Chairman.

Warm regards,
Neil Leikach, *President*
leikach@verizon.net

The Mission

PROMOTING excellence in pharmacy practice
STRENGTHENING the profession of pharmacy
ADVOCATING for all Maryland pharmacists

Maryland Pharmacist

SPRING 2012

2 PSPC Series | National Public Health Initiative and Opportunities for Maryland Pharmacists

7 Script Your Future

8 Mentorship Program Launches

10 Happy 40th Maryland Poison Center

13 Rx & the Law

14 Global Brigade Heads to Panama

16 Boehringer Ingelheim Premier Supporter of Bowl of Hygeia Award

18 Hub on Policy and Advocacy

20 Continuing Education | Dabigatran: A New Oral Direct Thrombin Inhibitor

24 Continuing Education Quiz

12 New Members/Time Capsule
25 Executive Director's Message

Advertiser's Index

6 CareFirst
15 McKessen
17 NASPA
23 Pharmacist's Life

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We welcome your feedback and ideas for future articles for Maryland Pharmacists. Send your suggestions to Peggy Funk, Maryland Pharmacists Association, 1800 Washington Blvd., Ste. 333, Baltimore, MD 21230, or email peggy.funk@mdpha.com, or call 410.727.0746

National Public Health Initiative and Opportunities for Maryland Pharmacists

In a continued effort to meet Maryland pharmacists' needs and advance pharmacy practice in Maryland, the Professional Development Committee presents the "Patient Safety and Clinical Pharmacy Services Collaborative (PSPC)" series highlighting a national public health initiative and opportunities for Maryland pharmacists. Specifically, the series will focus on opportunities with the Health Resources and Services Administration (HRSA) patient safety and quality improvement initiatives, as well as the 10th Scope of Work to prevent adverse drug events by the Centers for Medicare & Medicaid Services (CMS). With this introductory article in the spring 2012 issue of the journal, there will be additional articles in future issues featuring other teams across the state of Maryland.

ARTICLE 1

Join a Statewide Public Health Initiative to Reduce Adverse Drug Events: Pharmacists' Contributions to Be Recognized by CMS

By Ka Yiu Carmen Lam, PharmD Candidate 2012; and Jennifer Thomas, PharmD, Delmarva Foundation for Medical Care, MPhA Trustee

Among the many healthcare issues facing the pharmacy community, medication safety tops the list. Consider the following statistics: more than 133 million Americans lived with chronic illnesses in 2005;[1] 91% of all prescriptions are filled for a chronic condition;[2] at least 1.5 million preventable adverse drug events (ADEs) occur within the healthcare system each year,[3] with an estimated 13.5 percent of hospitalized Medicare beneficiaries experiencing ADEs during their hospital stays;[4] of the nearly 1 million Medicare beneficiaries discharged from hospitals in October 2008, about 1 in 7 individuals experienced an adverse event. Facing this public health issue, the Centers for Medicare & Medicaid Services (CMS) has charged Delmarva Foundation for Medical Care (DFMC), the Medicare Quality Improvement Organization in Maryland, to collaborate with and support the work of multidisciplinary, community-based teams to minimize harm related to ADEs in high-risk patients. (Quality Improvement Organizations [QIOs] operate in every state and in the District of Columbia, Puerto Rico, and the Virgin Islands under contracts with CMS to provide local oversight of Medicare services and billing.)[5]

PSPC: An Innovative, Interprofessional Medication Management Improvement Model

Multiple quality improvement initiatives have been undertaken to reduce ADEs in high-risk patient populations such as the older adults. One successful project is the Patient Safety and Clinical Pharmacy Services Collaborative (PSPC), a quality improvement and interdisciplinary collaborative sponsored by the Health Resources and Services Administration (HRSA) of the U.S.

The team was presented with two national awards, the PSPC Life-Saving Patient Safety Award and PSPC Performance Award during the PSPC Annual Session in Chantilly, VA in January, 2012.

Pictured left to right: Hoai-An Truong, former Acting Executive Director, Experiential Learning Program (ELP), Assistant Professor; MPhA Trustee and Co-Chair Professional Development Committee, University of Maryland School of Pharmacy; Diem-Thanh (Tanya) Dang, Team Co-Leader and Coordinator, Center for Medicine Access, Primary Care Coalition (PCC) of Montgomery County; Rosemary Botchway, UMSOP Preceptor, Team Leader and Director, Center for Medicine Access , Primary Care Coalition (PCC) of Montgomery County; Heather Congdon, Assistant Dean for Shady Grove and Assistant Professor, University of Maryland School of Pharmacy; Faramarz Zarfeshan, UMSOP Preceptor and Alumnus, Co-Owner, ALFA Specialty Pharmacy .

Department of Health and Human Services (DHHS). The PSPC aims at improving health outcomes and patient safety for high-risk patients and improving the delivery system by enhancing care coordination among the providers and partners involved; fostering multi-disciplinary, team-based care; and integrating medication management and other services to minimize harm related to ADEs and maximize optimal health outcomes. By forming community-based teams across the country and partnering with colleges of pharmacy, primary care associations, and other stakeholders, PSPC teams deliver patient-centered services that are improving patient health outcomes and safety, while also increasing cost-effective clinical pharmacy services.[6]

Until recently, the first and only PSPC team in Maryland has been the Primary Care Coalition (PCC) of Montgomery County. This team has implemented an interprofessional collaborative medication therapy management (MTM) model and service for underserved, high-risk patients with diabetes as a population of focus. The pharmacists on the PCC team include MPhA Board

The team welcomed the Maryland Pharmacist Association and the Delmarva Foundation for Medical Care in 2004.

PSPC provides pharmacists with an excellent opportunity to participate in an ongoing quality improvement plan.

of Trustee member and co-chair of the Professional Development Committee Hoai-An Truong, PharmD, AE-C, MPH, former Acting Executive Director of the Experiential Learning Program and Assistant Professor, University of Maryland School of Pharmacy; Heather B. Congdon, PharmD, BCPS, CDE, Assistant Dean, Shady Grove Campus, Assistant Professor, University of Maryland School of Pharmacy; and Faramarz Zarfeshan, RPh, Pharmacist Owner, ALFA Specialty Pharmacy. The team is led by Rosemary Botchway MS HCA, Director, PCC Center for Medicine Access and Diem-Thanh (Tanya) Dang, PCC Community Pharmacy Coordinator over 2 years.

The Primary Care Coalition of Montgomery County (PCC) is a private, non-profit, charitable organization located in Silver Spring, MD. Founded in 1993, the PCC pursues a clear mission: to serve as the catalyst for the development and coordination of a community-based health care system that strives for universal access and health equity for underserved residents. The mission is facilitated through the public-private Montgomery Cares Program (MCares), providing primary health care through a network of 11 independent, non-profit, safety-net clinics. PCC became aware of the PSPC collaborative during its inaugural year, PSPC 1.0, in 2008-2009 and recognized the value of clinical pharmacy services for the clinics and the patient population.

Upon joining the PSPC Collaborative, a team was formed which included the PCC, Mercy Health Clinic located in Gaithersburg and Proyecto Salud Clinic in Wheaton, ALFA Specialty Pharmacy based in Columbia, and University of Maryland School of Pharmacy. The team has participated in the PSPC 2.0 in 2009-2010 and PSPC 3.0 in 2010-2011 with increasing success in showing positive clinical outcomes for high-risk, complex patients and the development of an inter-professional collaboration through integration of MTM within the Mercy Health Clinic. In 2011, the team received the American Diabetes Association's "Promising Practice Award of Excellence." In 2012, the team received the HRSA Outstanding Performance and Life-Saving Patient Safety Awards (see photo at the beginning of this article).

Currently enrolled in PSPC 4.0 during 2011-2012, the team welcomed two new affiliate partners: the Maryland Pharmacists Association (MPhA) and The Delmarva Foundation for Medical Care, the Medicare Quality Improvement Organization in Maryland. A primary goal of

PSPC 4.0 participation is expansion to include additional network clinics.

Based on the success of early PSPC teams such as the Primary Care Coalition of Montgomery County, CMS is calling on QIOs to collaborate with organizations currently participating in the PSPC effort and with appropriate state, regional, or federal partners to form additional community teams.

Populations of focus will include Medicare beneficiaries who meet one of the following criteria: high-risk patients who have 5 or more chronic conditions and/or who take 8 or more medications on at least a weekly basis, are evaluated by 2 or more providers, take the anticoagulant warfarin on a regular basis (at least weekly and for 3 months or more), take antipsychotics and/or take medications for diabetes mellitus.[7] DFMC will provide the tools and interventions available in the PSPC toolkit to help teams achieve defined goals for each population of focus. DFMC will help teams track improvement in health status and safety measures in real time and track and monitor the number of ADEs and potential ADEs that occurred in targeted patient groups. Additional measures will include the number of ER visits, hospitalizations, and/or hospital readmissions where the primary or secondary reason for the visit was an ADE. This project offers great opportunity for pharmacists to take responsibility and receive recognition for improving medication therapy management and patient outcomes.

Conclusion

Reducing adverse drug events is a major public health issue in the effort to optimize care for patients while avoiding associated excessive costs. The ADE reduction project aligns the QIO's work with current national quality initiatives, such as the National Quality Strategy, Partnership for Patients, One Million Hearts Campaign, and CMS efforts to improve health and health care for all Medicare beneficiaries and promote quality of care to ensure the right care at the right time, every time. Pharmacists have a great opportunity to participate in an ongoing quality improvement and safety projects that achieves the goals we extol in our profession. For further information contact Jennifer Thomas, PharmD, Delmarva Foundation for Medical Care, thomasjen@dfmc.org, 410-872-9698. Further information on national quality initiatives is available through: National Quality Strategy, Partnership for Patients, Million Hearts Campaign.

This material was prepared by Delmarva Foundation for Medical Care, the Medicare Quality Improvement Organization for Maryland, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health. The contents presented do not necessarily reflect CMS policy. 10-SOW-MD-ADE-093011-048

For questions regarding MTM opportunities or suggestions, please contact MPhA Professional Development Committee Co-chairs Kristen M. Fink, PharmD, BCPS, CDE , Clinical Pharmacy Specialist, Kaiser Permanente and Fink's Pharmacy at fink462@hotmail.com, or Hoai-An Truong, PharmD, AE-C, MPH , Assistant Dean for Professional Affairs and Associate Professor, School of Pharmacy and Health Professions, University of Maryland Eastern Shore and MTM Pharmacist with the Primary Care Coalition of Montgomery County, at htruong@abcforyourhealth.org.

REFERENCES

1. CDC National Center for Chronic Disease Prevention and Health Promotion: Chronic Disease Prevention http://www.cdc.gov/nccdphp/overview.htm. Accessed September 28, 2011.
2. Rosamond et al. American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart Disease and Stroke Statistics—2008 Update: a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Circulation. 2008;117(4):e25-146. Epub 2007 Dec 17.
3. Aspden P, Wolcott J, Palugod R, Bastien T. Preventing Medication Errors. Institute of Medicine of the National Academies. Jul 2006. http://url.ie/d8cx. Accessed September 29, 2011.
4. Levinson D. Adverse Events in Hospitals: National Incidence Among Medicare Beneficiaries. Office of Inspector General, DHHS. Nov 2010. http://oig.hhs.gov/oei/reports/oei-06-09-00090.pdf. Accessed October 3, 2011.
5. Centers for Medicare & Medicaid Services. Quality Improvement Organizations. DHHS. http://www.cms.gov/qualityimprovementorgs/. Accessed September 28, 2011.
6. Kwon L. Patient Safety and Clinical Pharmacy Services Collaborative (PSPC) 4.0 – Information Packet. Health Resources and Services Administration. Aug 2, 2011. http://url.ie/d8d1. Accessed September 29, 2011.
7. Centers for Medicare & Medicaid Services. Quality Improvement Organizations—10th Statement of Work. 2011; Section C. https://www.fbo.gov/?s=opportunity&mode=form&tab=core&id=c9758e68610857188320640 25f15d75f&_cview=0.

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Script Your Future Aims to Increase Medications Adherence Awareness

By Danielle Davis

Nearly three out of four Americans report that they do not always take their medication as directed. As a result, medication non-adherence causes more than one-third of medicine-related hospitalizations, nearly 125,000 deaths in the United States each year and adds $290 billion in avoidable costs to the health care system annually.

That's where a new national campaign with local ties stepped in. Last year, the National Consumers League (NCL) launched the three-year campaign, *Script Your Future*, aimed at increasing awareness about the importance of medication adherence, especially for those patients with diabetes, cardiovascular or respiratory conditions. Baltimore is one of six target markets where *Script Your Future* is working to highlight the importance of taking medicine as prescribed directly to consumers, as well as through medical professionals. According to a recent survey conducted by NCL, non-adherent patients are less likely to have received a full explanation of the consequences of their condition, and are less convinced about the importance of adherence.

Script Your Future is working in Baltimore and communities across the country to encourage more conversations between patients and health care professionals about the importance of taking medicine as prescribed, and to provide patients and their health care professionals with a range of online tools and resources to help start the conversation and improve adherence among patients. To learn more about the campaign or to access online tools that may guide your conversations with patients, please visit the health care professionals page on http://scriptyourfuture.org.

The Maryland Pharmacists Association is one of more than a dozen Baltimore-based health care stakeholders participating in this local effort. If you are interested in participating in *Script Your Future Baltimore*, contact Kelly Cahill at 410-504-8312.

Above: Daiichi-Sannkyo (an SYF corporate sponsor) associates, Liz Salter, Value Account Manager, Managed Markets, and Mahesh Tawney, PharmD, Medical Science Liaison, at the Baltimore Kick-off in November.

Left: Student pharmacists (*back row, left to right*) Andrew Phan, Katie Watson, Janet Lee, Eric Wong, Rumany Penn, and (*front*) Carla Cobb.

Mentorship Makes a Difference Thanks to MPhA Professional Development Committee

The Professional Development Committee of the Maryland Pharmacists Association (MPhA) launched its new Pharmacists Mentorship Program at the MPhA/MD-ASCP Mid-Year Meeting in February. This program is intended to pair newly practicing professionals with more seasoned pharmacists who are well skilled and established in a specific field of pharmacy care. The Committee is currently recruiting for both pharmacy mentors and mentees. A recent survey of newly graduated pharmacists indicates a strong interest for mentorship in the following areas: long-term care, health-systems, assisted living, and advocacy.

> "We make a living by what we get; we make a life by what we give."
> —*Winston Churchill*

Mentorship: Mentor and Mentee Perspectives

By Anna Kim and Kathy Ghomeshi
Student Pharmacists

Both mentors and mentees have much to gain from their reciprocal workplace relationship. For the mentors, it allows them to share their professional experiences and wisdom regarding pharmacy care practice. Their years of practice give them a perspective that can be truly beneficial to others. The act of sharing that perspective can impart a sense of pride when their mentees go on to become successful pharmacists. For the mentees, it allows them to utilize the knowledge and experience of their mentor and learn from that person's successes and failures. They are privy to guidance and information that they might not have access to otherwise.

The MPhA Professional Development Committee interviewed Doris Voigt, PharmD, an experienced mentor, and Jason Kwong, a student mentee, regarding their mentorship experiences.

Dr. Voigt works for the Kaiser Permanente Foundation Health Plan of the Mid-Atlantic States as the Academic Affairs Coordinator for the region and is a longtime member of MPhA. She is actively involved in Phi Lambda Sigma (PLS), which is the Pharmacy Leadership Society at the University of Maryland School of Pharmacy. Her involvement with PLS and her interest in the future evolvement of the pharmacy profession instilled in her a desire to mentor student pharmacists.

Dr. Voigt acknowledges many role models who have helped shape her pharmacist career over the years. When asked about what drives her to be a mentor she replied that "one tries to make an impact on others to improve." Based on her career experiences, Dr. Voigt offers new practitioners the following advice:

- Position yourself for success
- Market yourself at all times by being visible, get involved, be ready for opportunities
- Have an updated CV [curriculum vitae] ready at all times
- Constantly ask yourself the question "When is good enough—good enough?"
- Remember you are always on stage and be professional 24/7

Dr. Voigt notes that her personal joy from her mentorship experience occurs when one of her mentees achieves a milestone. Also she comments that it is her pleasure to have the opportunity to meet and assist others. Dr. Voigt encourages individuals to consider involvement in the Pharmacists Mentorship Program because it is a multifaceted experience that includes building networks and creating career opportunities.

Jason Kwong, a fourth-year student at the University of Maryland School of Pharmacy Baltimore, shared his personal experiences as a mentee. Jason is originally from California and coming to Baltimore was his first experience living on the east coast. He has a professional interest in pharmaceutical legal consulting.

Jason sought a mentor because he wanted to learn from someone else's pharmacy expertise and professionalism. He states that "since I knew that starting off, I wouldn't have all the answers in pharmacy or life, I was hoping that a mentor could help me find some."

Jason met his mentor while on an experiential rotation during his second year of pharmacy school, and he still keeps in contact with his mentor through email. Jason says that his mentor - a hospital pharmacy manager at an oncology pharmacy - helped shape the way he viewed pharmacy. According to Jason, his mentor was devoted to performing well on his job and was sincere in his care for people, especially his patients. Jason liked his mentor's lighthearted nature and strong work ethic, among other qualities. The best advice he received from his mentor was to "apply myself and push myself to be good ... in order to really gain the rewards that the job would yield."

When asked if he would recommend others to participate in mentorship, he replied, "I would encourage younger upcoming professionals to just [go] out on a limb and just ask. No one is going to walk up to you handing you a single sheet with all the things you want to know, and the worst anyone can say if they don't want [to] is no. The first step is the hardest but just humbly asking someone to be your mentor, how they got to where they are, or what their takes on pharmacy or life are, you can learn some great things, and presto- your life is better already."

Doris Voigt, PharmD, and Jason Kwong highlight some of the numerous benefits of mentorship. The MPhA Professional Development Committee encourages pharmacists to get involved in the Mentorship Program. Pharmacists who are interested in becoming involved with the Mentorship Program can contact Joni Larrabee at joni.larrabee@gmail.com, or Kristen Fink at fink462@hotmail.com.

From left to right: Chai Wang, PharmD; Second-year Cyurry Choi; Third-year Andrew Phan; Fourth-years Peter Thai and Sara Low. The mentorship dinner is being hosted by Doris Voigt, Pharm D; and husband Thomas Voigt (*back right*).

Maryland Poison Center

UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY

40 YEARS OF SERVICE 1972-2012

By Lisa Booze, PharmD, CSPI, Maryland Poison Center
University of Maryland School of Pharmacy

The Maryland Poison Center (MPC) is celebrating 40 years of service! When it opened in 1972 at the University of Maryland School of Pharmacy, there was a staff of three: a medical director, an operations director and one person to answer the emergency calls 9-5 weekdays. Pharmacy students and medical students manned the phones in the evenings and on weekends. Now, pharmacists and nurses who are nationally certified as Specialists in Poison Information provide fast, free and confidential advice on poisonings and overdoses 24/7. Just over 8,000 calls were answered that first year. In 2011, more than 63,115 public citizens and health professionals called the MPC. Since 1972, nearly 2 million Marylanders have been helped by the toxicology experts at the MPC!

The services of the poison center have always been vital for people of all ages and backgrounds. Half of all calls to the MPC involve small children who are found with open bottles of medicine, cleaners and other household products. Many calls involving teens and adults are drug-related—wrong doses, wrong medicines and drug interactions. Other calls are the result of taking drugs of abuse or intentional overdoses. Occupational exposures, envenomations and environmental poisonings are also reasons that callers dial the emergency number for the MPC.

A quick call to the Maryland Poison Center can save health care dollars as well as save lives. More than 70% of all cases reported to the MPC are managed safely at home, saving valuable health care resources! An Institute of Medicine study estimated that every dollar spent on poison centers saves at least $7 in health care costs,[1] and the U.S. Department of Health and Human Services estimates that poison centers save more than $1 billion in public healthcare costs per year! Not to mention the fact that managing patients outside of a health care facility helps to make sure that EMS providers and emergency department staff are available to help other patients.

One out of every five calls to the Maryland Poison Center is from a health care provider (e.g. pharmacist, EMS provider, nurse, physician) asking for advice in the assessment and management of a poison emergency. Even after the initial consult, our professionals follow patients throughout their hospital stay, continuing to make treatment recommendations. Patients managed with poison center expertise on average experience shorter hospitalizations (median length of stay of 2 days versus 5 days without poison center assistance) helping healthcare providers serve more patients and decreasing healthcare costs.[2]

The MPC analyzes calls in real-time for trends and events that might be of public health significance (e.g. terrorism, food poisoning, product recalls). Our specialists have provided assistance during many public health events over the years, including:

- Gasoline ingestions in 1979 when long lines at gas pumps forced some to siphon gas from one tank to another
- Cyanide contamination of Tylenol in 1982
- Train fire in the tunnel under Baltimore in 2001
- Anthrax attacks in 2001
- Carbon monoxide exposures from the use of generators during the blizzards and tropical storms of 2009, 2010 and 2011
- Abuse of synthetic marijuana and the new stimulant known as "bath salts" since 2010
- Mercury in skin lightening creams in 2011

The MPC strives to prevent poisonings and raise awareness of the dangers of poisons through education programs, an e-newsletter (Poison Prevention Press), and distribution of poison prevention materials to the public. Education extends to health professionals as well.

Speakers for education programs and ToxTidbits, our e-newsletter for health professionals, help pharmacists, physicians, nurses, and others stay up-to-date with the assessment and treatment of poisonings. And more than 100 health care professionals visit the MPC each year to learn more about toxicology and how we handle emergency calls.

What does the future hold for poison centers? The need for poison centers is increasing as the misuse of prescription drugs has resulted in an increase in the number of emergency department visits and has become a top cause of unintentional injury deaths. Despite this, poison centers have fallen victim to the same economic challenges the rest of the country is experiencing, and several centers in the U.S. have had to close. Funding for the Maryland Poison Center comes from federal and state sources as well as grants and contracts. Federal funding has decreased by 20% in the last year with additional cuts expected. State funding for the MPC has been reduced as well; when budget cuts are applied to higher education, it trickles down to decrease our operating budget.

How can you help the Maryland Poison Center in this, our 40th year?

- Program the poison center telephone number, 800-222-1222, in your phone and spread the word to patients, friends and family to do the same.
- Sign up for our e-newsletters, ToxTidbits and Poison Prevention Press by going to our website: www.mdpoison.com.
- While on our website, order and download educational materials (fact sheets, brochures, Mr. Yuk stickers, telephone stickers, magnets) to distribute to your patients, schools and workplaces.
- We'd like to hear from you! Let us know how the Maryland Poison Center has helped you and your patients. Email us at MPC40years@gmail.com.
- Lastly, help save our poison centers—contact state and federal lawmakers to let them know how valuable the MPC is to Marylanders!

REFERENCES

1. National Research Council. Forging a Poison Prevention and Control System. Washington, DC: The National Academies Press, 2004.
2. J Toxicol Environ Health Part A. 2007;70(2):107-110.

Jeanne Wunderer, a certified specialist with MPC reviews a case with Miah Jung, a 4th year student pharmacist with the University of Maryland School of Pharmacy.

New Members

MPhA welcomes their newest Member Pharmacists

Larry Lim
Jeannie Poon
Heather Free
Jacqueline Ransom
Alexandra Wohlgemuth
Karim Elmahri
Thu Tran
Michael Gonzalez
Karen Slagle
Wendy Jackson
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Jill McCormick
Janet Ayuk
Kimberly Boian
Jennifer Furst
Sajal Roy
Venetia Barbee
Jay Krosnick
Rajkamal Brahmanapalli

Pharmacy Time Capsules

By Dennis B. Worthen, Lloyd Scholar, Lloyd Library and Museum, Cincinnati, OH

SECOND QUARTER 2012

One of a series contributed by the American Institute of the History of Pharmacy, a unique non-profit society dedicated to assuring that the contributions of your profession endure as a part of America's history. Membership offers the satisfaction of helping continue this work on behalf of pharmacy, and brings five or more historical publications to your door each year. To learn more, check out: www.aihp.org

1987

Twenty-five years ago:

Petition requesting recognition of Nutrition Support Pharmacy Practice as a specialty was submitted to the Board of Pharmaceutical Specialties

1962

Fifty years ago:

New England College of Pharmacy affiliated with Northeastern University

The Indian Hospital at Crow Agency, Montana began filing outpatient prescriptions directly from the patient's medical record. This was eventually adopted throughout the Indian Health Service.

1937

Seventy-five years ago:

National Cancer Institute was established to conduct and support research relating to the cause, diagnosis, and treatment of cancer.

1912

One hundred Years Ago:

Public Health and Marine Hospital Service was renamed the Public Health Service (PHS) and the mission was expanded to include communicable diseases field investigations, navigable stream pollution, and information dissemination.

APhA House of Delegates was established as a forum for all branches of the profession to have a voice.

AND THE LAW

This series, *Pharmacy and the Law*, is presented by Pharmacists Mutual Insurance Company and your State Pharmacy Association through Pharmacy Marketing Group, Inc., a company dedicated to providing quality products and services to the pharmacy community.

Record Keeping isn't that Important, is It?

By Don R. McGuire Jr., RPh, JD

Terry at Midtown Pharmacy was dealing with another recurring frustration. Their usual generic brand of atenolol was back ordered again. Terry ordered in a couple of 100 count bottles to hold them over until their usual brand was available again. Terry didn't bother to update their computer database to reflect this change because she would then just have to change it back again 2 days from now. The change isn't really that important anyway, right?

Wrong. Your documentation is the only thing you will have later to prove what you did today. We all forget things, especially when they come up weeks or months later. Consider the following claim scenario.

A pharmacy was sued by a former patient over some faulty transdermal fentanyl patches. The patient alleged that he was injured due to the patch releasing the medication too quickly. The patient's profile indicated that he received the patch manufactured by company A. Company A's product had in fact been recalled due to this very problem. The patient was sure that the excessive dose delivered had caused him to be hospitalized. The pharmacy staff went through months of anxiety and expense while producing records and being deposed.

What everyone learned at the end was that the patch received by the patient wasn't manufactured by company A. He had received patches manufactured by company B. This was discovered when reviewing the invoices from the time period in question. Company B's product had been purchased because of the recall of company A's patches. However, the patient profile indicated that the patient had received Company A's patches. Proper recordkeeping would have most likely prevented this pharmacy from suffering through months of litigation.

A second consideration here is billing. In today's world, it is more important than ever to bill for what was actually dispensed. Third party payers expect and demand that their customers receive the product that is billed to the third party payer. While the 2 different fentanyl patches discussed above may be clinically interchangeable, they are probably not the same when it comes to acquisition cost or reimbursement rates. One of them may have been non-formulary, for example. This difference is multiplied if one product is the brand name one. Clinically, none of the differences are significant. However, we aren't talking about therapeutics. We are talking finances and recordkeeping. This sort of discrepancy can lead to repayment demands, even penalties and interest, following an audit.

The importance of recordkeeping shouldn't be overlooked. In litigation, documentation is everything. If it wasn't documented, it wasn't done. Many cases have turned on seemingly small documentation issues. Perpetual inventory totals, timecards, delivery records, pick-up logs, documentation of counseling (or refusal of counseling) are some other examples of records that have become key points in a case. The lesson here is that no record is too small or too trivial to be skipped over. Update those inventory changes as they come in. It may seem burdensome at the time, but there are potential benefits later.

© Don McGuire, RPh, JD, is a Professional Liability Claims Attorney at Pharmacists Mutual Insurance Company.

This article discusses general principles of law and risk management. It is not intended as legal advice. Pharmacists should consult their own attorneys and insurance companies for specific advice. Pharmacists should be familiar with the policies and procedures of their employers and insurance companies, and act accordingly.

University Takes its Global Brigade to Panama

By Andrew Phan, PharmD Candidate 2013

Third-year student pharmacist Hana Kim hangs out with Panamanian children during a lunch break.

In January 2012, student volunteers from the University of Maryland (UM), a St. Joseph's Medical Center pharmacist, and a nurse practitioner from the UM Medical System traveled to Panama City, Panama to provide essential health services as part of the University's Global Medical Brigade program. During the week long trip, the 29-member team worked alongside Panamanian pharmacists, medical doctors, and dentists to establish temporary health clinics that provided health and dental care to more than 400 Panamanian men, women, and children in rural communities.

Since 2004, Global Medical Brigades has mobilized thousands of university students and professionals through nine skill-based service programs to improve quality of life in under resourced communities. On this most recent trip, Global Medical Brigade clinics seek to bridge the gap between the first-world luxuries of Panama City and the third-world poverty of rural Panama.

With two previous brigade trips to Honduras under her belt, third-year pharmacy student Sheetal Patil was well prepared to lead this trip to Panama, where the Global Medical Brigades program is still in its infancy. "We worked closely with the staff of Global Brigades within Panama staff to ensure a safe and successful program," she says.

The UM Global Medical Brigade team traveled four hours outside of Panama City to the communities of Santa Fe, Agua Fria, and Arimay within the Darien Province, where isolated villages struggle to provide the essential services and goods that a developed country takes for granted. During house visits, local families described simple diets of rice and meat, daily difficulties in obtaining clean water, and limited availability of health care. One Panamanian mother shared her experience of traveling to a local clinic—a two-hour bus ride away—at 4 a.m. to wait in line just to make an appointment for two weeks later. "Panama provides free public health care, but the lack of doctors and hospital beds in rural provinces is devastating for those communities," Patil says.

At the UM clinic, patients rotated between five stations: triage, medical, dental, pharmacy, and charlas ("chats"). UM volunteers spent time in each station directing patients, gathering patient histories, taking vitals, shadowing doctors and dentists, filling prescriptions, counseling patients on medication use, and providing health education during charlas. Clinicians and volunteers regularly moved station-to-station to communicate issues and discuss complications. This arrangement allowed for a completely interdisciplinary approach to health care that provided effective diagnosis and therapy, especially with the limited resources available on the brigade.

"Global Medical Brigades provided volunteers the unique opportunity to learn in an interdisciplinary setting, to apply the clinical knowledge they learned in the classroom, and to experience an exciting foreign culture," says Patil. The UM chapter of Global Medical Brigades has conducted three successful brigades and is planning a fourth for this summer.

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Boehringer Ingelheim Named Premier Supporter of Bowl of Hygeia Award

Recognizes Pharmacists Making a Difference in Their Communities

Boehringer Ingelheim has announced its support of The Bowl of Hygeia Award, an honor that recognizes pharmacists who possess outstanding records of civic leadership in their communities. Established in 1958, the Bowl of Hygeia Award is presented annually by participating state pharmacist associations. In addition to service through their local, state and national pharmacy associations, award recipients devote their time, talent and resources to a wide variety of causes and community service.

"Just as the Bowl of Hygeia encourages pharmacists to take active roles in their communities, Boehringer Ingelheim has a strong commitment to making more health in its communities," said Bob Belknap, Executive Director, Trade Sales and Operations for Boehringer Ingelheim. "Becoming the Premier Supporter in 2012 and continuing the proud tradition of this program is something we felt strongly about."

The program, owned by the American Pharmacists Association Foundation and the National Alliance of State Pharmacy Associations, was initiated by the A. H. Robins Co., which was later purchased by Wyeth Pharmaceuticals, now Pfizer. Throughout the years, approximately 3,000 pharmacists have been recognized with the Bowl of Hygeia award; it remains one of the most notable achievements in the careers of recipients.

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2011 Recipients of the “Bowl of Hygeia” Award

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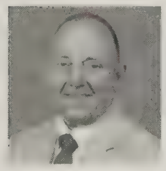
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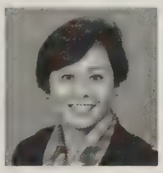
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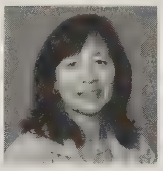
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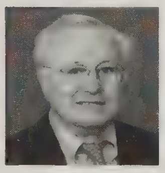
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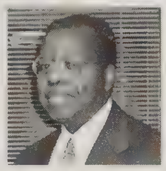
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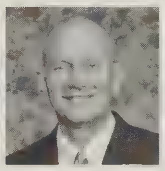
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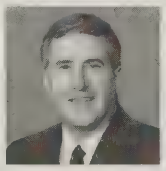
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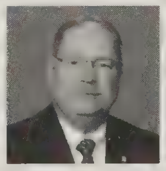
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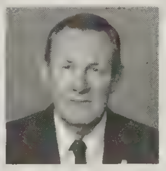
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The Bowl of Hygeia award program was originally developed by the A. H. Robins Company to recognize pharmacists across the nation for outstanding service to their communities. Selected through their respective professional pharmacy associations, each of these dedicated individuals has made uniquely personal contributions to a strong, healthy community. We offer our congratulations and thanks for their high example. The American Pharmacists Association Foundation, the National Alliance of State Pharmacy Associations and the state pharmacy associations have assumed responsibility for continuing this prestigious recognition program. All former recipients are encouraged to maintain their linkage to the Bowl of Hygeia by emailing current contact information to awards@naspa.us. The Bowl of Hygeia is on display in the APhA Awards Gallery located in Washington, DC.

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FDA Considers New Drug Paradigm

By Diane Yap

Under a potential new paradigm for drug categories being considered by FDA, the agency would approve certain drugs—ones that would otherwise require a prescription—for nonprescription use under required "conditions of safe use."

FDA said that such conditions could include an intervention by a pharmacist before the medication could be sold. Medications are currently available in the United States in two categories: prescription, and nonprescription, also known as OTC. The new proposal would not create a third class of drugs.

At a 2-day FDA public hearing, Using Innovative Technologies and Other Conditions of Safe Use to Expand Which Drug Products Can Be Considered Nonprescription, APhA Executive Vice President and CEO Thomas E. Menighan, BSPharm, MBA, ScD (Hon), FAPhA, publicly supported the proposed paradigm before a panel of FDA officials on March 22.

"This is a significant opportunity for pharmacists to improve public health and increase access, much as we've done with immunizations," Menighan said. "We see the new paradigm concept fitting into the overall drug safety continuum [as do] Risk Evaluation and Mitigation Strategies [REMS]."

APhA's Key Points

As FDA considers what would constitute conditions of safe use, Menighan suggested eight areas of focus. Product approval in the new paradigm should be science based, any application process must allow public input, and the process for making drugs available through conditions of safe use must be uniform and standardized, he said.

Menighan urged the integration of pharmacist patient care activities into electronic health records [EHRs]. Pharmacist interventions as part of conditions of safe use should be built on consensus-based, best-practice algorithms, and pharmacists must be able to bill and be compensated for the clinical services required to dispense products with conditions for safe use, he said.

Menighan emphasized that pharmacists are well qualified to provide clinical interventions and supported authority for the new paradigm as part of the Prescription Drug User Fee Act pending in Congress.

Hearing Dialogue

FDA asked about possible business models for pharmacies, pharmacist integration into EHRs, the Asheville Project, and lessons learned from REMS and pharmacist-administered immunizations.

In a dialogue, Menighan suggested CMS and others as possible payers, offered the Pharmacy e-Health Information Technology Collaborative roadmap document, and offered details on the Asheville Project. He recommended employment of systems and standards to address workload concerns as APhA has advocated with REMS and noted that the evolution of pharmacist-administered immunizations has been a 10- to 12-year grind and wasn't an easy battle.

"The lesson here [from immunizations] is: What's best for the patient?" Menighan said.

Written comments are due by May 7, 2012. After considering the input, FDA will determine whether and how to proceed, an agency official said at the 2012 APhA Annual Meeting & Exposition in New Orleans on March 11.

While many questions remain, the new paradigm is a great opportunity for pharmacy, Menighan said at the hearing. APhA will work with FDA to make it a reality.

Lessons in lobbying at Political Leadership Breakfast

The Political Leadership Breakfast keynote speaker, Rep. Bill Cassidy, MD, (R-LA) told a sold-out crowd of pharmacists and student pharmacists to educate their elected representatives on the issues that matter to them. Cassidy spoke at the Hilton New Orleans Riverside Hotel on March 12 during the 2012 APhA Annual Meeting & Exposition.

Some may consider politics beneath them, said Cassidy, a gastroenterologist, but "your elected representative has to hear from you to know what to represent."

A highlight of Annual Meetings, this year's breakfast program also featured a talk by the opening speaker, Louisiana state Sen. Fred Mills Jr., BSPharm, (R-22) and presentations of three 2012 APhA awards related to government. Steve C. Firman, BSPharm, MBA, APhA Political Action Committee (APhA–PAC) Board of Governors Chair, welcomed attendees to the breakfast and introduced the speakers and awardees.

Proceeds from the breakfast benefited APhA's Political Education Fund and the APhA–PAC.

Advocacy Tips

Mills, a 1978 pharmacy school graduate and a self-proclaimed pure Cajun, declared himself among the "brotherhood and sisterhood" of pharmacists and student pharmacists in the room. He offered entertaining stories that illustrated concise pieces of advice for lobbying elected representatives.

"If you lobby an issue and you're united, you cannot lose," Mills said.

When lobbying an elected representative, his or her attention span is about 2 or 3 minutes, Mills said. Make sure—especially students—that it's a quick 2 or 3 minutes, and always promote pharmacy as the profession that will save money and as the solution. More lobbying tips included picking strategic partners, promoting the issue well in advance of a vote, and always playing offense.

"Pharmacy is one of the nicest professions," Mills said. "In the political arena, sometimes we're too nice."

2012 Award Winners

The recipient of the 2012 Hubert H. Humphrey Award was Stephen W. Schondelmeyer, PharmD, MA PubAdm, PhD, FAPhA, of the University of Minnesota College of Pharmacy. He was selected in recognition of his long-term role in influencing and shaping public policy.

The recipient of the 2012 Good Government Pharmacist-of-the-Year Award was Trish Rippetoe Freeman, BSPharm, PhD, of the University of Kentucky College of Pharmacy. She was selected in recognition of her legislative and grassroots advocacy work. The recipient of the 2012 Good Government Student Pharmacist–of-the-Year Award was Kyle J. Hampson of Duquesne University Mylan School of Pharmacy. He was selected in recognition of his advocacy for the pharmacy profession and his work to raise student awareness.

Student match program

The winning chapter of the APhA Academy of Student Pharmacists Winter Is Cold ... But Advocacy Is Hot! APhA–PAC Match Challenge was also announced: University of Florida College of Pharmacy, which raised more than $11,500 for the PAC. As a reward, former APhA Presidents Ed L. Hamilton, PharmD, FAPhA, and Timothy L. Tucker, PharmD, FAPhA, served breakfast in Gators aprons to the University of Florida tables. In its second year, the student match program raised more than $22,000 from 36 participating schools of pharmacy.

REGULATORY SCORECARD:
What is Happening NOW!

Requests for applications or information receiving public comments:

- CMS: Comments due by May 7 on a proposed rule specifying the Stage 2 criteria that eligible professionals, eligible hospitals, and critical access hospitals must meet to qualify for Medicare and/or Medicaid incentive payments toward the "meaningful use" of electronic health records
- CMS: Applications due by June 14 on an Initiative to Reduce Avoidable Hospitalizations Among Nursing Facility Residents to support the Partnership for Patients campaign goal of reducing hospital readmission rates by 20% by the end of 2013. Pharmacists are strongly encouraged to apply

Requests for information for which the comment period has closed:

- CMS: Draft Advance Notice and Call Letter on policy and technical changes to Medicare Part D for 2013

Etc:

- U.S. Supreme Court: Oral arguments on the constitutionality of the Affordable Care Act (the health care reform law) were held March 26–28. While many lawsuits have been filed against the 2010 law, the court chose to review Florida v Department of Health and Human Services.
- FDA: A public advisory committee meeting was held April 2 to provide advice on different types of consumer studies needed to assess proper use of a MedKit containing doxycycline to be taken for anthrax exposure.
- For a complete list of all the issues and regulations being monitored and acted on by APhA, access the Government Affairs section of pharmacist.com. Also, print readers of the Hub should know that hyperlinks to pharmacist.com, Federal Register notices, and other useful websites can be accessed in the online version of the Hub, located at www.pharmacytoday.org.

Therapeutically Speaking....

Dabigatran: A New Oral Direct Thrombin Inhibitor

By Jeannie L. Poon, BS, Marci Strauss, BS, and Kristin Watson, Pharm D, BCPS

Introduction

Dabigatran (Pradaxa®, Boehringer Ingelheim) is the first oral anticoagulant approved by the FDA in over 50 years. Although warfarin has been at the forefront of anticoagulation therapy, it's use is limited by lack of standardized dosing, the need for laboratory monitoring, and numerous drug-food and drug-drug interactions. Dabigatran is available in two strengths (75 or 150 mg), therapeutic drug monitoring is not required and there are a limited number of drug interactions.[1] Dabigatran is approved for use to prevent stroke and blood clots in those with non-valvular atrial fibrillation (AF) and has been evaluated for the treatment of acute venous thromboembolism (VTE) and postoperative thromboprophylaxis in patients undergoing knee or total hip replacement procedures.[1-4] A New Drug Application (NDA) has not been filed to the FDA for these latter indications.

Mechanism of Action

Dabigatran is a prodrug; once converted to its active moiety it acts as a direct thrombin inhibitor. By specifically binding to thrombin, fibrinogen is not converted to fibrin, thus thrombus formation is prevented.[1]

Results of Clinical Trials

The RE-LY (Randomized Evaluation of Long Term Anticoagulation Therapy) study compared dabigatran versus warfarin for stroke prevention in high-risk patients with non-valvular AF.[5] Dabigatran dosed at 150 mg orally twice daily was superior to warfarin in preventing stroke and systolic embolism (1.11% vs. 1.69% per year). Dabigatran dosed at 110 mg orally twice daily was not as effective at preventing stroke and systolic embolism compared to the higher dose (1.53% vs. 1.69%), although it was more effective than warfarin. The rate of hemorrhagic stroke was significantly lower in those receiving dabigatran (0.12% with dabigatran 110 mg and 0.10% with dabigatran 150 mg vs. 0.38% with warfarin). The risk of major bleeds (defined as a reduction in hemoglobin by 2 g/dL, a transfusion of 2 or more units of blood, or symptomatic bleeding in a critical area or organ) was similar between patients receiving dabigatran 150 mg and warfarin (3.11% vs. 3.36% per year). A higher incidence of major bleeds was seen in those 75 years of age or older receiving dabigatran. In this sub-group bleeding rates were 4.43 %, 5.1% and 4.37% per year, respectively, for the dabigatran 110 mg, 150 mg and warfarin groups.[6] The risk of major bleeds in those receiving 110 mg of dabigatran was 2.71% per year, which was significantly less than the risk in the warfarin group. Patients in the dabigatran 150 mg treatment arm also had a significantly higher rate of major gastrointestinal bleeds (1.6% vs. 1.1%) and was associated with a non-significant increased rate of any gastrointestinal bleeds (6.1% vs. 4.0%) when compared to warfarin. Based on the results of this trial, 150 mg twice daily dosing (and a reduced dose for those with renal impairment, 75 mg twice daily) was approved for reducing the risk of thromboembolic events in high-risk patients with AF. The FDA did not approve the 110 mg dose, as they could not identify a specific population that would benefit from the lower dose.[7]

The RE-COVER study compared the use of dabigatran with warfarin in the treatment of acute VTE. The primary outcome was the incidence of recurrent symptomatic VTE and related deaths over a 6-month period.[2] There was no difference in the rate of recurrent VTE between patients receiving dabigatran and warfarin (2.4% vs. 2.1%, respectively). The occurrence of major bleeding did not significantly differ between the dabigatran and warfarin groups (1.6% vs. 1.9, respectively). However, there were significantly less episodes of any type of bleeding in the dabigatran group (16.1%) than the warfarin group (21.9%).

In both of these trials, dyspepsia occurred more frequently in those receiving dabigatran therapy. Additionally, the risk of bleeding with dabigatran therapy is increased in those age >75 years and for those with renal disease. The risk of bleeding with dabigatran is also increased in those with recent and/or recurrent gastrointestinal bleeding, or those with a gastric ulcer;[1] this agent should be avoided in this population.

Administration

Dabigatran may be taken without regard to food and the capsule should be swallowed whole. Missed doses should be administered as soon as possible on the same day. However, if the missed dose cannot be administered at least 6 hours prior to the next scheduled dose, it should be skipped.[1]

Contraindications

Dabigatran is contraindicated for those with active pathological bleeding and those who experienced a hypersensitivity reaction to dabigatran.[1]

Drug Interactions

Dabigatran should not be used in combination with rifampin, a P-glycoprotein (P-gp) inducer, as dabigatran concentrations would significantly decrease. Concurrent use with P-gp inhibitors (e.g. amiodarone, dronedarone and systemic ketoconazole) can increase levels of dabigatran; dose adjustments should be considered in select patients(see Dosing section).[1] Clinicians must weigh the risk and benefits of combining dabigatran with agents that may increase the risk of bleeding (e.g. non-steroidal anti-inflammatory and anti-platelet therapies). Unlike warfarin, the effects of dabigatran cannot be reversed.

Dosing

Dabigatran is dosed 150 mg orally twice daily and reduced to 75 mg twice daily for those patients with a creatinine clearance (CrCl) between 15 and 30 mL/min. Due to the lack of evidence, no recommendations are available for those with a CrCl <15 mL/min. Patients with moderate renal impairment (CrCl 30-50 mL/min) who are receiving dronedarone and systemic ketoconazole should have dabigatran reduced to 75 mg twice daily. Concomitant use of dabigatran and all P-gp inhibitors should, however, be avoided in patients with CrCl 15-30 mL/min.[1]

Switching between dabigatran and warfarin

If a patient's international normalized ratio (INR) is 2.0 or less, an immediate switch from warfarin to dabigatran can be made. In converting a patient from dabigatran to warfarin, the initiation of warfarin is dependent on the patient's CrCl. If CrCl is greater than 50 mL/min, warfarin can be started three days before dabigatran is discontinued. For CrCl of 31-50 mL/min, warfarin can be started two days prior to discontinuation of dabigatran. If CrCl is 15-30 mL/min, warfain can be started one day before dabigatran is stopped.[1]

Holding for surgery

For procedures that carry a high risk for bleeding, dabigatran should be held for two days (four doses) prior to the procedure and reinitiated within two to three days afterwards. Patients who are undergoing a procedure with a moderate bleeding risk should have doses held one day (two doses) before the procedure and restarted one to two days afterwards.[1,8,9]

Use in Special Populations

Pregnancy/Lactation

Dabigatran is considered Pregnancy Category C and should be avoided in pregnancy unless benefits greatly outweigh the risk of harm. The drug should be used cautiously in nursing mothers since it is unknown if the drug is excreted into breast milk.[1]

Pediatrics

The safety of dabigatran use in children is unknown and thus used with caution.[1]

Geriatrics

Elderly patients have a higher risk for bleeding, particularly those ≥75 years of age.[1]

Storage and Handling

Dabigatran should be kept at room temperature between 59°F and 86°F (15°C to 30°C), away from any moisture. It must be stored in its original packaging and immediately closed after opening, as a desiccant is supplied in the cap to reduce humidity and ensure potency. This desiccant must remain in the bottle. Therefore, patients should be advised not to transfer the capsules to pill boxes, or pill organizers. According to the manufacture, once opened, the product must be used within four months.[1]

The Pharmacist's Role

Review with patients how they can self monitor for bleeding (e.g. unexplained bruises, blood in the stool, urine, and/or coffee-ground emesis) as well as signs and symptoms of stroke (e.g. one-sided weakness, sudden difficulty speaking or understanding others, trouble with seeing in one or both eyes). Emphasize the importance of using the medication within four months of opening the bottle.1 Even if doses are remaining after this time, the medication should be refilled and a new bottle started; this is important even for those who are adherent to therapy but have remaining doses due to a scheduled interruption (e.g. hospitalization or surgery).

Other New Oral Anticoagulants

Rivaroxaban, Xarelto®, a factor Xa inhibitor was recently approved to reduce the risk of stroke and VTE in those with AF. This agent is also approved to reduce the risk of VTE and pulmonary embolism in those who just underwent knee or hip replacement surgery. Like dabigatran, rivaroxaban requires dose adjustments for those with renal dysfunction. This agent should be avoided in those receiving P-glycoprotein inhibitors and strong cytochrome P450-3A4 inhibitors (e.g. ketoconazole and ritonavir) and inducers (e.g. rifampin and phenytoin).10 Apixaban, another Factor Xa inhibitor, has also been compared to warfarin to reduce the risk of stroke and systemic embolism in those with AF and at least one risk factor for stroke. Apixaban was found to be superior to warfarin in reducing the risk of stroke and systemic embolism and was associated with a decreased risk of bleeding.[11] The NDA for apixaban was granted a priority review by the FDA in November 2011; it is anticipated that the FDA will reach its decision to approve this agent or not by March 2012.

REFERENCES

Pradaxa® [Full Prescribing Information]. Ridgefield, CT: Boehringer Ingelheim Pharmaceuticals, Inc.; November 2011.

1. Schulman S, Kearon C, Kakkar AK, et al. Dabigatran versus warfarin in the treatment of acute venous thromboembolism. N Eng J Med. 2009;361:2342-52.
2. Eriksson BI, Dahl OE, Rosencher N, et al. Oral dabigatran etexilate vs. subcutaneous enoxaparin for the prevention of venous thromboembolism after total knee replacement: the RE-MOD EL randomized trial. JThromb Haemost. 2007;5: 2178-85.
3. Eriksson BI, Dahl OE, Rosencher N, et al. Dabigatran etexilate versus enoxaparin for prevention of venous thromboembolism after total hip replacement: a randomised, double-blind, non-inferiority trial. Lancet. 2007;370:949-56.
4. Connolly SJ, Ezekowitz MD, Yusuf S, et al. Dabigatran versus warfarin in patients with atrial fibrillation. N Eng J Med. 2009;361(12):1139-51.
5. Eikeboom JW, Wallentin L, Connolly S, et al. Risk of Bleeding With 2 Doses of Dabigatran Compared With Warfain in Older and Younger Patients with Atrial Fibrillation. An Analysis of the Randomized Evaluation of Long-Term Anticoagulation Therapy (RE-LY) Trial. Circulation. 2011;123:2363-2372.
6. Beasley BN et al. Anticoagulant options—why the FDA approved a higher but not lower dose of dabigatran. N Eng J Med 2011;364:1788-90.
7. New drug: Dabigatran (dabigatran). Pharmacist's Letter/ Prescriber's Letter 2010;26(11):261101.
8. Douketis JD. Pharmacologic properties of the new oral anticoagulants: a clinician-oriented review with a focus on perioperative management. Curr Pharm Des. 2010;16:3436-41.
9. Xarelto® [Full Prescribing Information]. Titusville, NJ: Janssen Pharmaceuticals, Inc.; November 2011.
10. Granger CB et al. Apixaban versus warfarin in patients with atrial fibrillation. N Eng J Med 2011;365:981-92.
11. Apixaban gains priority FDA review for stroke and VTE prevention in VTE. Available at http://www.forbes.com/sites/larryhusten/2011/11/29/apixaban-gains-priority-fda-review-for-stroke-and-vte-prevention-in-af/ November 29, 2011 Accessed December 1, 2011.

Edited by Mary Lynn McPherson, PharmD, BCPS, CPE Professor, University of Maryland School of Pharmacy

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ACPE Universal Program Number: 144-0000-12-013-H01-P.
Program release date: March 1, 2011
Program expiration date: March 31, 2013

- The authors have no financial disclosures to report.
- This program is Knowledge Based—acquiring factual knowledge that is based on evidence as accepted in the literature by the health care professions.

1. What is one of the potential advantages of using dabigatran over warfarin?
a) Twice daily dosing
b) Negligible risk of bleeding
c) No contraindications for use
d) Laboratory monitoring is not required

2. What is the mechanism of action of dabigatran?
a) Inhibits thrombin directly
b) Inhibits adenosine diphosphate chemoreceptor
c) Inhibits vitamin K-dependent clotting factors II, VII, IX and X
d) Inhibits platelet aggregation and thrombus formation by binding to the GPIIb/IIIa receptor on the surface of platelets

3. Dabigatran should be stored at room temperature:
a) True
b) False

4. According to manufacture labeling, after opening a bottle of dabigatran, tablets must be used within how many months?
a) 1 month
b) 2 months
c) 3 months
d) 4 months

5. Which of the following are common side effects of dabigatran therapy?
a) Bleeding
b) Dyspepsia
c) Headache
d) A and B

6. The use of dabigatran should be avoided in combination with which of the following medications?
a) Clopidogrel
b) Food
c) Heparin
d) Rifampin

The Maryland Pharmacy Continuing Education Coordinating Council is accredited by the Accreditation Council for Pharmacy Education (ACPE) as a provider of continuing pharmacy education. This article provides for 1.0 contact hour (0.1 CEU) of continuing education credit.

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7. The dose of dabigatran to reduce the risk of stroke in those with non-valvular atrial fibrillation and normal renal function is which of the following?
a) 75 mg daily
b) 75 mg BID
c) 150 mg daily
d) 150 mg BID

8. What is the pregnancy category for dabigatran?
a) A
b) B
c) C
d) D

9. The RE-LY study which compared warfarin and dabigatran in those with non-valvular atrial fibrillation reported that:
a) The risk of gastrointestinal bleeding is higher in those receiving dabigatran
b) The rate of hemorrhagic stroke rate was lower in those receiving dabigatran
c) Dabigatran 150 mg BID is superior to warfarin in preventing stroke and reducing the risk of systemic embolism
d) All of the above

10. The dose of dabigatran in those patients receiving hemodialysis is:
a) 75 mg daily
b) 110 mg daily
c) 150 mg daily
d) The agent is not recommended in this patient population

Howard Schiff
Executive Director

Maryland law requires the Executive Director of a non-profit without a professional lobbyist to register as the lobbyist for the association. In the beginning of my tenure it was a daunting job just tracking the bills, finding the hearing room, knowing when and where to submit testimony, and becoming familiar with the "players." However, there has been an advantage to being a pharmacist when lobbying on pharmacy issues; and being recognized as such though advocacy is a profession unto itself.

The lobbying effort for pharmacy has been described as a three-legged stool. Actually, it's a four-legged stool. As the representative of MPhA, the professional development side of pharmacy, MPhA collaborates with the Board of Pharmacy representing the regulatory side, the EPIC Pharmacies' lobbyist, representing the independents, and the Maryland Association of Chain Drug Stores lobbyist, representing the chains. As a general rule, each supports the other to some degree.

The 2012 legislative session of the Maryland General Assembly ended April 9. Due to budget disagreements, it was a particularly contentious session. Cuts in popular programs, entitlements and/or a rise in taxes were addressed, but no decision was reached. As this article goes to print a special session has been scheduled in an effort to reach a budget agreement.

HB 283/SB 274 were bills granting a sunset extension for the Board of Pharmacy until 2022. This legislation also contained a revision for the approval for collaborative practice protocols. No longer will a protocol have to be approved by both the Board of Pharmacy and the Board of Physicians-a great step forward. The protocols have only to be submitted. The bills passed.

HB 334/SB 132 were bills requiring Non-Resident, Non-Pharmacies to be licensed in Maryland. Prior to the introduction of this legislation, Maryland law only required these pharmacies (chiefly mail order) to be licensed in their state of residence. Because of state licensure requirements, all pharmacists employed in a mail order house would have to be licensed in Maryland. In order to pass, that portion of the bill was amended to a pharmacist-in-charge (PIC) who is licensed in Maryland and accountable to Maryland residents for their prescriptions.

SB 603 was a bill tightening prescriber dispensing. Not all provisions of the bill were accepted. However, this legislation will require prescribers to follow the same requirements as pharmacies. Inspections, permits, child resistant closures, inventories, and a requirement to personally prepare and dispense were included. The bill was amended to increase prescriber fees to cover the cost of inspections from the Division of Drug Control which is staffed by pharmacists.

HB 531/SB 408 were bills that were introduced to allow pharmacists to administer any vaccine approved by the Centers for Disease Control (CDC). Although the bills were well received by legislators, who seemed in Committee and Sub-Committee hearings to support the bill in some version, ultimately this legislation failed due mainly in part to opposition by organized Medicine. Rumor has it that the Department of Health and Mental Hygiene had concerns regarding the possible loss of vaccination records in the medical home.

HB 689/SB 782 were introduced to allow the Board of Pharmacy to designate certain drugs as "specialty" drugs. No consensus was reached on a definition of a "specialty drug" and the bills failed. Also failed was an effort (HB 1066/SB916) to enhance penalties for theft (robbery or burglary) of controlled dangerous substances. Apparently, the Committees felt that current laws were sufficient.

It was especially encouraging to see that there was little disagreement among pharmacy groups and that support for the practice of pharmacy was generally universal though each organization had its own concerns and priorities.

Sincerely,

Howard Schiff

Howard Schiff
Executive Director

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Pharmacist Role in a Public Health Initiative to Reduce Adverse Drug Events Using a Standardized ADE Documentation and Reporting System

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New Board of Trustees officially recognized at the 130th Annual Convention (not pictured: MPhA Trustees Jennifer Thomas and Doug Campbell)

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"But I don't want to take my medicine"

Maryland Pharmacist

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"

My challenge for you and MPhA over the next year is to identify and aid in the startup of five additional [Community Pharmacy based] sites.

"

Dear MPhA Members,

Let me start by saying that it is truly an honor to be chosen by the members of MPhA to lead the Association during what is sure to be an exciting time for pharmacy in our State.

I've been involved with the Association and our legislative efforts for a number of years now, and last spring was inspired to see the passage of a bill that has been ten years in the making. It would be nice to say that Maryland has been a leader over the last decade in the area of Collaborative Practice, or as we call it **Collaborative Drug Therapy Management (CDTM)**, but Maryland's strict law has limited pharmacists' abilities and has certainly held us back. Many of you realize that nationally, clinical pharmacy services and collaborative practice increase efficiency within the healthcare system and have been embraced by federal agencies and many other states. What you may not realize is that, with the help of the Board of Pharmacy and the grassroots lobbying of MPhA and the Maryland Pharmacy Coalition (MPC), pharmacy in Maryland won a major victory in 2012. We have dealt with stalling from the Board of Physicians since the inception of CDTM in Maryland and have worked hard to expose their efforts to derail the will of the General Assembly for the last several years. This struggle ended this past spring when the House and Senate voted to remove the road block and eliminate the need for approval of collaborative practice agreements by the Board of Physicians. Under **SB 274, approvals are no longer needed from the Board of Physicians or Board of Pharmacy**. The pharmacist and physician will only need to submit their contract to their respective Board, paving the way for much more efficient and timely approval of collaborative practice agreements.

What does this mean for pharmacy in Maryland? It means that we can finally embrace the opportunity and demonstrate the improved health outcomes that we know patients can achieve when pharmacists are truly a member of their healthcare team. Currently, we have one pilot Community Pharmacy based site for CDTM. My challenge for you and MPhA over the next year is to identify and aid in the startup of five additional sites. If any of you have a residency trained pharmacist on staff and a good relationship with a physician, you are an ideal site and I encourage you to contact the Association.

I've often heard the phrase "get into politics or get out of pharmacy" and that statement rings true for all of us in Maryland. We have worked hard to expand the Pharmacy Practice Act and showcase what pharmacists can do over the last several years, but we need your help to be successful. Pharmacists are historically one of the most trusted professions, and unfortunately one of the worst lobbying groups. The level of regulation and the intrusion of third parties into the business of pharmacy did not happen by accident. We as a profession have chosen to be uninvolved in the process and in many cases we have not been at the table when decisions that affected pharmacists were made. We can overcome these years of inactivity and reactionary politics; however we have much work to do.

You can plan now to make a difference by marking your calendar to attend **Legislative Day 2013 scheduled for Thursday, February 14**, so that we at MPhA and our partners at MPC can have a strong presence in Annapolis. I ask for your help as we undertake a challenge from fellow pharmacist, Assistant Surgeon General RADM Scott Giberson, to educate our leaders about pharmacist delivered patient care services and further to have Pharmacists named as Health Care Providers in Maryland. For those of you who have not had the opportunity to read his report, *Improving Patient and Health System Outcomes Through Advanced Pharmacy Practice: A Report to the Surgeon General 2011*, Google it today and learn more about how pharmacists can help to reduce healthcare costs.

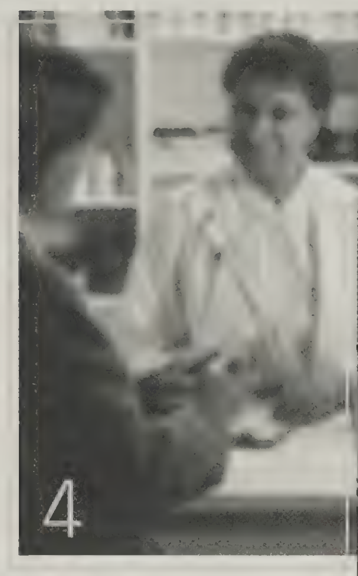
Thanks again for your support and I look forward to a great year!

Brian M. Hose

Brian M. Hose, PharmD
brian.hose@gmail.com

Contents

MARYLAND PHARMACIST FALL 2012



FEATURES

4 Patient Safety Series — Pharmacist's Role in a Public Health Initiative to Reduce Adverse Drug Events – Using a Standardized ADE Documentation and Reporting System

7 Do Your Investments Match Your Risk Tolerance?

10 Penicillin: Then and Now

14 MPhA 130th Annual Convention

19 Comprehensive Medication Reviews

DEPARTMENTS

7 **Financial Forum**
9 **Campus News**
20 **Rx and the Law**
21 **Pharmacy Time Capsules**
22 **Continuing Education**
26 **CE Quiz**

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12 McKesson
25 Pharmacists Mutual Insurance Company

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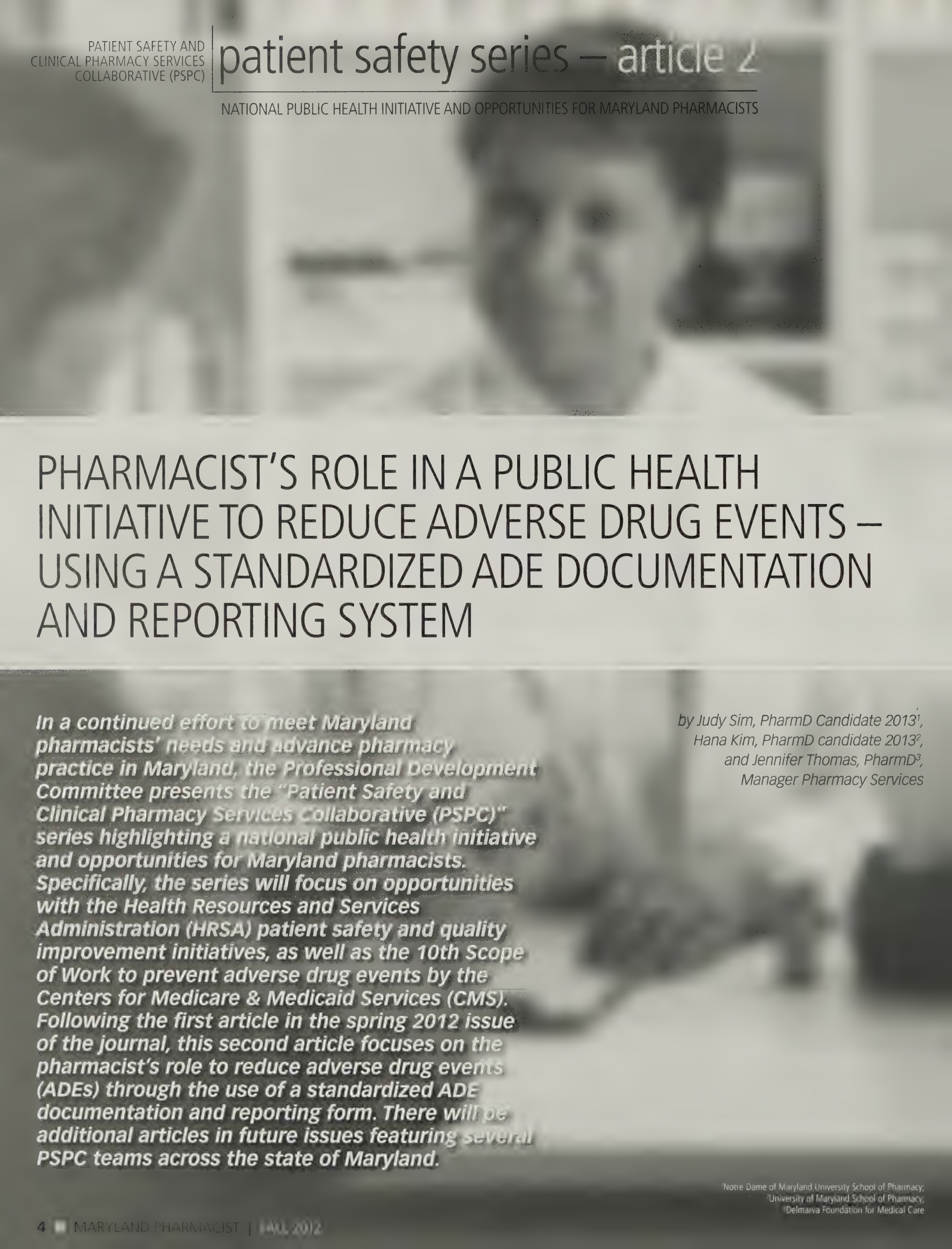

PATIENT SAFETY AND
CLINICAL PHARMACY SERVICES
COLLABORATIVE (PSPC)

patient safety series – article 2

NATIONAL PUBLIC HEALTH INITIATIVE AND OPPORTUNITIES FOR MARYLAND PHARMACISTS

PHARMACIST'S ROLE IN A PUBLIC HEALTH INITIATIVE TO REDUCE ADVERSE DRUG EVENTS – USING A STANDARDIZED ADE DOCUMENTATION AND REPORTING SYSTEM

by Judy Sim, PharmD Candidate 2013[1],
Hana Kim, PharmD candidate 2013[2],
and Jennifer Thomas, PharmD[3],
Manager Pharmacy Services

In a continued effort to meet Maryland pharmacists' needs and advance pharmacy practice in Maryland, the Professional Development Committee presents the "Patient Safety and Clinical Pharmacy Services Collaborative (PSPC)" series highlighting a national public health initiative and opportunities for Maryland pharmacists. Specifically, the series will focus on opportunities with the Health Resources and Services Administration (HRSA) patient safety and quality improvement initiatives, as well as the 10th Scope of Work to prevent adverse drug events by the Centers for Medicare & Medicaid Services (CMS). Following the first article in the spring 2012 issue of the journal, this second article focuses on the pharmacist's role to reduce adverse drug events (ADEs) through the use of a standardized ADE documentation and reporting form. There will be additional articles in future issues featuring several PSPC teams across the state of Maryland.

[1] Notre Dame of Maryland University School of Pharmacy;
[2] University of Maryland School of Pharmacy;
[3] Delmarva Foundation for Medical Care

The Health Resources and Services Administration (HRSA) Patient Safety and Clinical Pharmacy Services Collaborative (PSPC) have expanded the impact on medication management outcomes steadily since its inception four years ago. Integration of clinical pharmacy services into healthcare teams has led to great improvements in the collaborative of improving health outcomes and patient safety for high-risk patients. Since 2011, the number of PSPC teams in the Maryland and District of Columbia areas has grown from two to nine teams. Periodic meetings help teams to focus on their medication safety and quality goals as well as promote collaboration and sharing among teams. On May 29, 2012, the representatives of the Primary Care Coalition of MontgomeryCounty (PCC), MedStar's Georgetown University Hospital Anticoagulation Clinic, Howard University School ofPharmacy, University of Maryland School of Pharmacy, ALFA Specialty Pharmacy, Apple Drugs and Diabetes Center, and Maryland Pharmacists Association (MPhA), met at the Delmarva Foundation for Medical Care (DFMC) in Columbia, MD. The representatives at the meeting included Hoai-An Truong, PharmD, MPH, AE-C; Heather Congdon, PharmD, BCPS, CDE; Faramarz Zarfeshan, RPh; Diem-Thanh (Tanya) Dang; Allen Chung, PharmD; Jonathan Puhl, PharmD; Yolanda Mckoy-Beach, PharmD; John Motsko, RPh, CDE; and Jennifer Thomas, PharmD. The meeting focused on defining and documenting potential adverse drug events (pADE) utilizing a standardized approach developed by Steven Chen, PharmD, University of Southern California (USC) School of Pharmacy. This program, known as the USC Medication Therapy Intervention & Safety Documentation Program, has been adopted by HRSA as an option for PSPC Teams to capture safety measures.

> “
>
> Dr. Chen's vision is that
> 'when combined with clinical and cost measures,
> the data aggregated through this program
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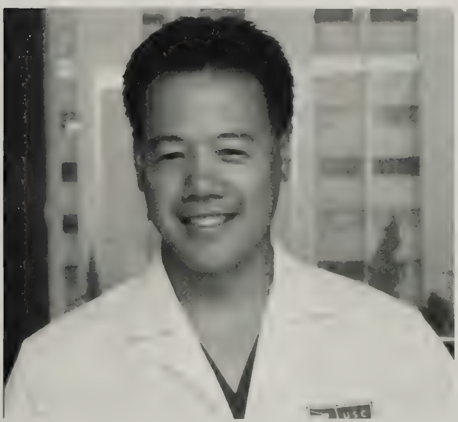
> clinical pharmacy services in
> individual clinics, health systems and among
> the public and legislators.'"



Dr. Steven Chen, PharmD

Dr. Steven Chen is an associate professor and the Hygeia Centennial Chair in Clinical Pharmacy at the USC School of Pharmacy. A major focus of his scholarly activity is quantifying the value of clinical pharmacy services in the outpatient setting. In a recent interview, Dr. Chen stated that his aim behind the Medication Therapy Intervention & Safety Documentation Program was "to be able to explain to an audience of healthcare professionals, senior leaders, and legislators that the dramatic improvements, as a results of clinical pharmacy service integration, are tied to the unique and essential services that are best provided by a pharmacist." In addition, his intent in developing the Medication Therapy Intervention and Safety Documentation Program "is to offer PSPC teams a tool aligned, as much as possible, with national standards or national organizations that will help them quantify their medication safety measures. By doing so, teams are able to assemble a compelling story of how clinical pharmacy services have helped avoid unnecessary suffering and harm from medications. I also wanted to offer teams the option of capturing all medication-related problems identified through clinical pharmacy services, emphasizing the scope and complexity of these problems that pharmacists are uniquely trained and qualified to manage. We need a standard method of quantifying medication-related interventions; otherwise, it's impossible to aggregate or benchmark findings across multiple health systems."

Dr Chen's documentation form consists of 4 parts: I. Medication Related Problems (MRPs), II. ADE/pADE Classification, III. pADE Severity Rating, IV. Intervention/Recommendation[1]. With the help of University of Southern California clinical pharmacists and the PSPC faculty, Dr. Chen developed and refined the 28 MRPs, as listed in the form. A list of the 28 MRPs is provided at the end of this article. This documentation program has been utilized by several health systems in Southern California, which helped justify the addition of clinical pharmacist positions. The data collected by PSPC teams utilizing this documentation program has supported the position that pharmacists are indispensable members of the healthcare team. Dr. Chen's vision is that "when combined with clinical and cost measures, the data aggregated through this program can be used to advocate for the implementation and spread of clinical pharmacy services in individual clinics, health systems and among the public and legislators." Furthermore, by capturing specific types of MRPs rather than aggregate numbers, practice sites are able to conduct quality improvement analyses and identify problems that may require further intervention such as a change to the flow of patents through the clinic or provider education regarding a medication class. Using the documentation program has presented challenges to some teams. Some users have found that the depth of information captured by the program is excessive, particularly for nonpharmacists. A common solution is to use only a subset of the categories, such as limiting the number of MRPs to the top ten that most frequently occur in a given clinic or health system. Another concern is that by adopting the documentation program, a clinic may inadvertently reduce FDA Medwatch reporting. Dr. Chen believes this can be managed by emphasizing that the USC documentation program captures many of the same elements required by Medwatch; adding a few more details will complete a Medwatch report for adverse drug reactions, which can be even easier if the entire process is integrated into an electronic health record (EHR). During the PSPC meeting with DFMC, the difficulty of integrating this documentation program into real-time workflow was discussed. Some teams are documenting the ADEs manually and later transferring the interventions into a database. Many teams are developing EHR versions of the USC documentation program and will share their templates with those who are using the same system.

During the PSPC regional meeting at Delmarva, attendees discussed future steps needed for PSPC to expand. One idea is to expose PSPC to the public and to policy makers through local newspapers and broadcast media outlets. Patient safety is also a universal priority and therefore, the PSPC representatives will focus on outreaching to pharmacy and other pertinent health care fields as an additional step towards expansion. According to Dr. Chen, "We never intended for our documentation program to become a national standard, but as more organizations publish their medication therapy intervention findings using our program, the likelihood of it becoming a national standard (either officially or unofficially) increases."

Medication Safety — ADE/pADE — potential adverse drug event — Medication Related Problems

1. Untreated medical problem
2. Drug dosing not adequate for treatment goals (dose, interval, duration)
3. Treatment not optimal based on current evidence/guidelines
4. Monitoring standards not being followed

5. Drug dosage excessive for treatment goals (dose, interval, duration)
6. Incomplete, improper directions
7. No indication for medication prescribed
8. Polypharmacy (Rx not needed)/ duplication
9. Contraindication
10. Adverse drug reaction (ADR)
11. Allergy
12. Drug interaction
13. Lab/diagnostic test indicated, not ordered
14. Abnormal lab results not addressed
15. Pharmacy/ dispensing error
16. Medication overuse or misuse
17. Dose discrepancy between patient use and prescribed therapy
18. Using expired medications

19. Medication underuse/poor adherence
20. Dosage form is not reasonable for patient
21. Inadequate patient self management behavioral, other non-drug variables
22. Patient dissatisfied or refuses treatment, no rational reason given

23. Drug not available in prescribed strength
24. Inadequate refills between scheduled visits
25. Nonformulary/not cost effect drug choice
26. Illegible prescription
27. No follow up appointment with PCP
28. Other

LEGEND

1– 4 — Medication Related Problem
5–18 — Safety (ADE/pADE)
19–22 — Nonadherence and patient variable
23–28 — Miscellaneous

For questions regarding MTM opportunities or suggestions, please contact MPhA Professional Development Committee Co-chairs Kristen M. Fink, PharmD, BCPS, CDE, Clinical Pharmacy Specialist, Kaiser Permanente and Fink's Pharmacy at fink462@ hotmail.com, or Hoai-An Truong, PharmD, MPH, AE-C, Assistant Dean for Professional Affairs and Associate Professor, School of Pharmacy and Health Professions, University of Maryland Eastern Shore and Pharmacist, Primary Care Coalition of Montgomery County, at htruong@abcforyourhealth.org.

This material was prepared by Delmarva Foundation for Medical Care, the Medicare Quality Improvement Organization for Maryland, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health. The contents presented do not necessarily reflect CMS policy. 10SOW-MD-ADE-062212-164

REFERENCES

1. Medication Therapy Intervention & Safety Documentation Program User Manual. Medication Therapy Intervention & Safety Documentation Form (Appendix A) http://www.cshp.org/uploads/file/CJHP/CJHP%20MarApr%202012.pdf

Do Your Investments MATCH Your *Risk* Tolerance?

Now is a good time to examine what's in your portfolio

The stock market is unsettled … and perhaps its fluctuations are unsettling you. It's a stressful time for the economy and Wall Street, and you may be concerned about your portfolio given what's going on with oil prices, the real estate market, and rising unemployment figures. It may be a good time to review how your assets are invested.

Is your portfolio balanced? A balanced portfolio may help you ride out stock market turbulence. Stocks and mutual funds aren't the only asset allocation choices you have, and you won't be alone this winter if you decide to examine other investment options.

Fixed annuities and bonds become attractive to investors when the market turns volatile. Bonds tend to maintain their strength when stocks perform poorly; fixed annuities are simply contracts with insurance firms, not correlated to stock market performance.

Last but not least, you have cash, though cash holdings haven't traditionally performed anywhere near the level of the stock markets.

Are you retired, or retiring? If you are, this is all the more reason to review and possibly even revise your portfolio. Frequently, people approach or enter retirement with portfolios that haven't been reviewed in years. The asset allocation that seemed wise ten years ago may seem foolhardy today.

Often, people in their fifties and sixties feel they need to accumulate more money for retirement, and that feeling leads them to accept more risk in their portfolio than they should. In the absence of a salary, however, you'll likely want consistent income and growth, and therein lies the appeal of a balanced investment approach designed to manage risk while encouraging an adequate return.

Why not take a look into your portfolio? Ask your financial advisor to assist you. You may find that you have a mix of investments that matches your risk tolerance. Or, your portfolio may need minor or major adjustments. The right balance may help you insulate your assets to a greater degree against financial ups and downs.

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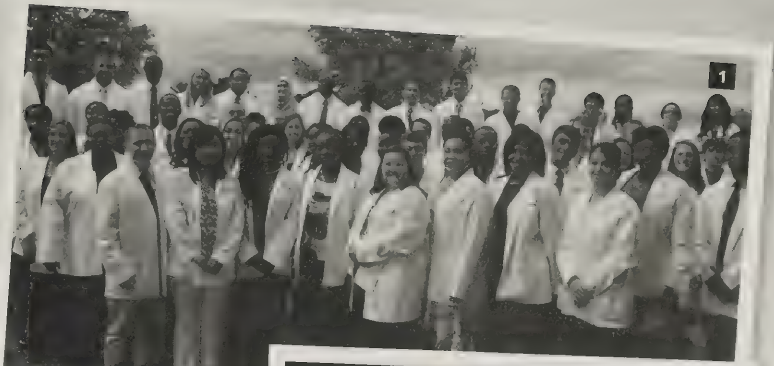
Congratulations to the students of the Maryland Schools of Pharmacy who recently celebrated their White Coat Ceremony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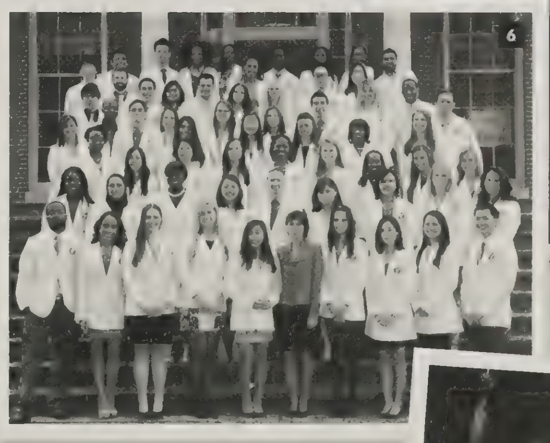
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University of Maryland Eastern Shore School of Pharmacy

1 — *University of Maryland Eastern Shore School of Pharmacy Class of 2015.*

2 — *White Coat Ceremony speaker MPhA President Brian Hose, PharmD, with Professor Cynthia Boyle, PharmD (also MPhA Foundation, Inc., President)*

University of Maryland School of Pharmacy

3 — *University of Maryland School of Pharmacy Class of 2016*

4 & 5 — *MPhA Treasurer Matt Shimoda, PharmD, and Doris Voigt, PharmD, Chair of the Meeting and Convention Committee assist with coats at Maryland's White Coat Ceremony.*

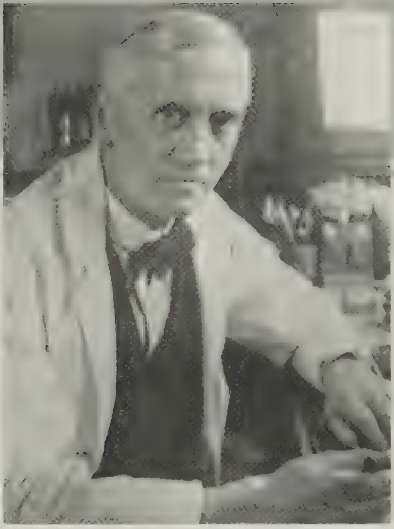
Notre Dame of Maryland University School of Pharmacy

6 — *Anne Lin, PharmD, Dean and Professor with the Notre Dame of Maryland University School of Pharmacy Class of 2016.*

7 — *Dr. Anne Lin, Michelle Mae Tandoc, Caitlin Hughes, PharmD, Assistant Professor, Clinical and Administrative Sciences.*

Penicillin
then and now

by Pablo Song, PharmD Candidate 2013
University of Maryland Eastern Shore School of Pharmacy



Sir Alexander Fleming. Krants, John C. Jr., Historical Medical Classics Involving New Drugs, *Baltimore: Waverly Press, 84.*

Most healthcare professionals are aware of Alexander Fleming's greatest discovery of the first effective antibiotic agent. Penicillin is without a doubt one of the greatest discoveries of the past century. In 1928, Fleming and a young microbiologist, D. Merlin Pryce, stumbled upon their discovery while examining some older cultures of *Staphylococci*. Fleming recognized the significance of the bacteria-free zones surrounding the mold which had grown on these cultures. Treating infections with a naturally-produced agent had never existed before this discovery; the mold, later identified to be *Penicillium notatum*, gave rise to the antibiotic we call penicillin today. It wasn't until 1940 during World War II that Australian Howard Florey and German refugee Ernst Chain successfully produced a stable form of penicillin which could be manufactured in mass quantities. Penicillin came to be called the "miracle" drug because it was one of the most effective antibiotics against wound infections, especially those caused by *Staphylococci* species. Later, it became used widely for other infectious diseases. Even today, penicillin is still one of the top 200 drugs prescribed on an annual basis. With such prevalent use, resistance became a significant concern and the necessity for newer and more potent antibiotic agents became evident. It is interesting to examine how scientists have approached the evolution of penicillin into the newer agents used today.

First of all, let's take a look at penicillin itself. In the beginning, penicillin was mainly used for *Staphylococcus aureus* infections associated with wounds. It was highly effective when it was first introduced, quickly started losing its efficacy. In the present time, the most common forms of this β-lactam antibiotic exist as penicillin V potassium and penicillin G. These agents, available orally as well as in IV formulations, are currently used mainly for gram-positive infections such as streptococcal pharyngitis and endocarditis. Penicilin G is also available as an IM injection as penicillin G benzathine and penicillin G procaine. These IM injections are absorbed slowly and have long half-lives and are used for diseases such as streptococcal infections, syphilis, and others. Although the main use of penicillin originally was to combat all Staphylococcus infections, more and more bacteria became resistant and necessitated improvement to the penicillin structure to improve efficacy and potency. Scientists and researchers started making alterations to penicillin on the benzene ring moiety to make it into more effective and potent drugs. The introduction of penicillin selectively allowed bacteria which could produce an enzyme called β-lactamase to survive. This enzyme easily hydrolyzes the β-Lactam structure of penicillin and make it ineffective. Scientists focused on producing a set of penicillin derivatives called β-lactamase resistant penicillins. This list includes methicillin, nafcillin, and isoxazolylpenicillins such as oxacillin, cloxacillin, and dicloxacillin. These agents are effective against β-lactamase producing *Staphylococci* species and range from oral to IV formulations for treatment of localized to systemic, mild to severe infections. Evolutionary resistance continued to develop to these agents, giving rise to methicillin-

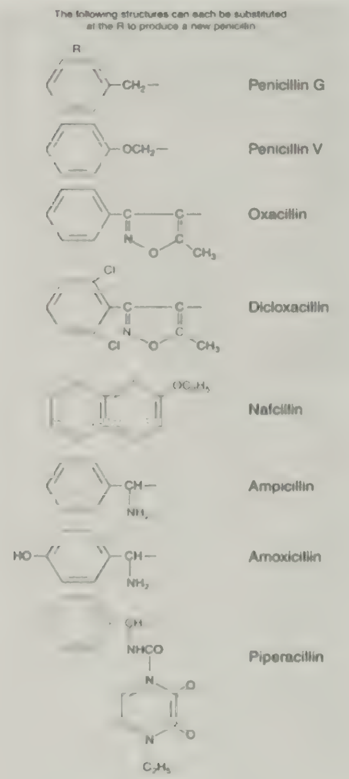


Figure 43-2. Katzung BG, Masters SB, Trevor AJ. Basic & Clinical Pharmacology. *12th ed: www.accessmedicine.com*

resistant strains of *staphylococci*, also known as MRSA. Penicillin was effective against gram-positive agents but it lacked gram-negative and anaerobic coverage. In order to broaden coverage, researchers structurally altered penicillin to produce a set of drugs known as extended-spectrum penicillins. Members of this group include aminopenicillins, carboxypenicillins, and ureidopenicillins. The aminopenicillins consist of penicillins with an amino group such as amoxicillin and ampicillin. Although these two agents are almost identical in structure, amoxicillin has a hydroxyl group that increases oral absorption. Amoxicillin is currently used as an oral agent for urinary tract infections, sinusitis, otitis, and some respiratory tract infections. Ampicillin is available as an oral agent as well as IV formulation and is useful for serious infections from anaerobes such as *Enterococci as well* as β-lactamase negative gram-negative species such as *E. coli* and *Salmonella*. Although these agents have extended-spectrum activity, they are still prone to β-lactamase and are rendered ineffective against β-lactamase producing bacteria, β-lactamase inhibitors, such as clavulanic acid, sulbactam, and tazobactam were subsequently added in combination to make the drugs less susceptible to cleavage and more potent. Available agents include Augmentin (Amoxicillin/Clavulanic acid, Unasyn (Ampicillin/Sulbactam).

> Penicillin was effective against gram-positive agents but it lacked gram-negative and anaerobic coverage.
> In order to broaden coverage, researchers structurally altered penicillin to produce a set of drugs known as extended-spectrum penicillins.

For severe cases, the carboxypenicillin ticarcillin usually in combination with clavulanic acid is an IV agent used against a wide range of severe infections including *Pseudomonas* infections. Another option is the ureidopenicillin piperacillin, which is usually used in combination with tazobactam (Zosyn). Zosyn is one of the most potent penicillins and it is used parenterally for severe polymicrobial infections and it covers *Pseudomonas* species as well. These combination IV agents are usually reserved for more severe conditions that require hospital admission.

Penicillin has evolved from simple purified mold extracts for treatment of wound infections to potent semi-synthetic combination products to treat severe infections from resistant species. Although the development of these potent agents has contributed significantly to healthcare, it is a constant reminder of the intimidating capability of the emergence of superbugs from these once-susceptible species. The pressure of developing new and more effective antibiotic agents continues to grow with rising resistant rates. More resources will be needed to discover new medications which can treat these superbugs; without patient education and antimicrobial stewardship, however, these new agents will be rendered obsolete in a very short period of time.

REFERENCE

Katzung BG, Masters SB, Trevor AJ. *Basic & Clinical Pharmacology*. 12th ed. New York (NY): McGraw-Hill Medical; 2012; Krantz, John C. Jr. *Historical Medical Classics Involving New Drugs*.Baltimore: Waverly Press, 1974. Print; Lexi-Comp Online.Lexi-Drugs Online. Hudson, OH: Lexi-Comp, Inc.; 2012. http://online.lexi.com/. Accessed August 28, 2012.

Welcome to our newest members!

Aida Bickley
Jim Bueter
Eric Butcher
Igor Cerny
Joy Darvin
Bethany DiPaula
Kristin Dominik
Santosh Dwarakanath
Felicia Eddga
Dana Fasanella
Katherine Feaganes
David Garrison
Padraic Keen
Gretchen Kendall
Jenna Klempay
Lubna Kousa
Louise Leach
Nicole Lee
Mel Lessing
Alemayehu Maru
Kakneka Mason
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Till Olickal
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Jarjeet Singh
Lawrence Stratton
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MPhA
MARYLAND PHARMACISTS ASSOCIATION

130th Annual Convention Highlights

Clarion Resort Fontainebleau Hotel in Ocean City, Maryland

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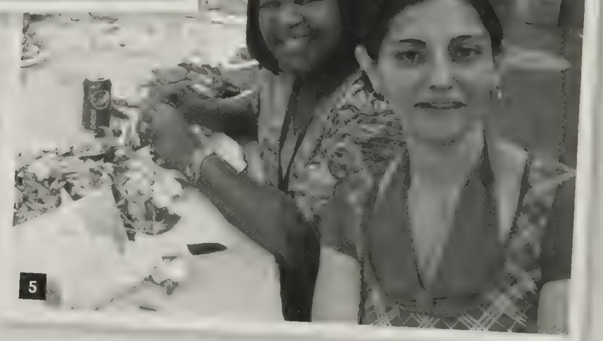
5

1 — *The Winners! Left to right: Organizers Gerry Herpel (left) and Butch Henderson present the trophy to team representative Mark Freeberry.*

2 & 3 — *Barry Poole Memorial Annual Golf Tournament at the Ocean City Golf & Yacht Club*

4 & 5 — *Crab Feast at the Berlin Volunteer Fire Department*

Golf Tournament Champions

Best Team Score: *UMES — Michael Geesaman, Mark Freeberry, Keith Larson, Zack Sherr*

Long Drives: *Mary Kremzner and Keith Larson*

Closest to the Pin: *Keith Larson and Mark Freeberry*

Thank you to our Golf Tournament Sponsors

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CE Sessions and Board of Trustees Breakfast Meeting

MPhA Past President Carol Stevenson thanks Doris Voigt, chair of the meeting and convention committee on a job well done!

Conference Competitions

Oh, the Competition was tough!

Team UMES were the winners of the **NASPA-NMA Self-Care Championship**.

(l – r) Matthew Balish, Geoffrey Twigg, Elizabeth Eddy, Patrick Dougherty, with Moderator Christine Lee-Wilson, MPhA Vice-President.

Know Pain, Know Gain Pharmacy Pain Management Counseling Competition sponsored by NASPA and Purdue Pharma. Special thanks to Lynn McPherson, PharmD, BCPS, CPE for moderating the contest.

(above l–r) Runners up Gerry Herpel, Marina Byrd, and Shane Hodges anxiously await the judges' decision.

And the winner is . . . UMES student Marina Byrd!

Annual Awards Luncheon

Each year, MPhA honors members of the pharmacy community who exemplify the highest professional standards and have made significant contributions to the pharmacy community.

Congratulations to our 2012 Recipients!

Frank Nice receives the Bowl of Hygeia Award from Neil Leikach. This award is sponsored by the APhA Foundation and NASPA. Boehringer Ingelheim is the premier supporter of the award.

"Dr. Frank Nice has spent an average of 240 hours per year over the past 15 years on the ground in Haiti providing primary medical and pharmaceutical care under austere conditions. In addition, he spends on an average another 240 hours each year in the United States organizing, setting up, and completing medical missions to Haiti by procuring necessary medical supplies, recruiting volunteers, obtain necessary funding, and providing leadership.

Dr. Nice is considered one of the world's pharmacist experts on the use of medications and breastfeeding. He recently published the second edition of Nonprescription Drugs and the Breastfeeding Mother. *He has authored articles and chapters in books on breastfeeding, health literacy, the role of power, and epilepsy. He has coauthored breastfeeding articles with over a dozen pharmacy students. He continues to provide free consultations to breastfeeding women, lactation consultants, and healthcare professionals". Award Nomination*

Kyle Melin (right) accepts the Distinguished Young Pharmacist Award sponsored by Pharmacists Mutual Companies from Dave Geoghegan.

Kristen Fink is honored with the Excellence in Innovation Award, sponsored by Upshire-Smith Laboratories, Inc. Presenting is MPhA President Neil Leikach.

Fred Abramson (right) is the 2012 Seidman Distinguished Achievement Award Recipient. Presenting is MPhA Executive Director, Howard Schiff.

Tony Tommasello (r) accepts the Cardinal Health Generation RX Champions Award sponsored by Cardinal Health Foundation. Presenting the award is Eric Sutherland, Cardinal Director of Sales Retail and Independent/ Alternate Care Pharmacy.

Other Award Recipients

Honorary President – Leonard DeMino, posthumously

Incoming President Award – Brian Hose

Outgoing President Award – Neil Leikach

Outgoing Speaker Award – Mark Lapouraille

MPhA Scholarship Awards

Mathew Balish of the University of Maryland Eastern Shore School of Pharmacy

Julie Gibbons of University of Notre Dame Maryland School of Pharmacy

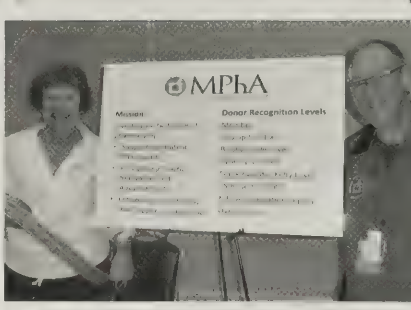
MPhA Foundation Scholarship Award

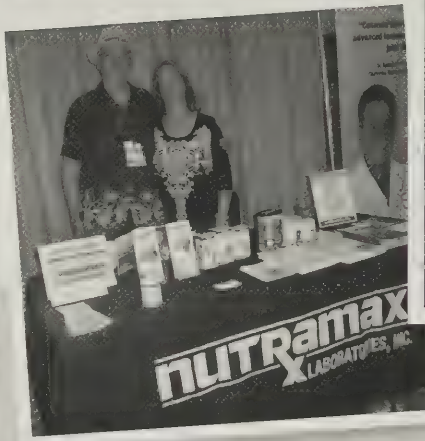
Kellie Chew of the University of Maryland School of Pharmacy

Note: For a full description of MPhA's Annual Awards and to submit a nomination, visit marylandpharmacist.org.

Earlier in the week, Lynn McPherson received the Mentor Award from President Neil Leikach.

Trade Show

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Comprehensive Medication Reviews

Where They Fit in the Spectrum of Pharmacist-Provided Care in Long Term Care

by Amber Streifel, PharmD Candidate 2013 and Stephanie Walters, PharmD Candidate 2013
Reviewed by Nicole Brandt, PharmD, CGP, BCPP, FASCP

Starting in January 2013, the Centers of Medicare and Medicaid Services (CMS) will be mandating a new standardized format for beneficiaries who have a Comprehensive Medication Review (CMR) completed. The CMR, is defined as an "interactive review (in-person or telephonic) of a beneficiary's medications, including prescription, over-the-counter (OTC) medications, herbal therapies and dietary supplements, that is intended to aid in assessing medication therapy and optimizing patient outcomes."[1] This service is an expectation regardless of the beneficiary's residence, although different regulations mandate varying eligibility and frequency requirements. These inherent challenges require that pharmacists and Medicare Part D plans need to be aware of these regulatory differences to ensure optimal medication management and integration into the care continuum. *Table 1* highlights similarities and differences between the different medication review services along the spectrum of pharmacist-provided care.

Table 1: Comparison of pharmacist-provided medication review services

	Comprehensive Medication Reviews (CMR) as part of Medication Therapy Management Programs[1]	**Pharmacy Review in Maryland Assisted Living Facilities[2]**	**Drug Regimen Review (DRR) in Skilled Nursing Facilities[3]**
Eligibility	Individuals over 65 years old, regardless of residence, who meet the following criteria: 1) Have multiple health conditions, 2) Taking multiple Part D medications, and 3) Who are likely to incur annual drug costs of at least $3,144.	Any Maryland assisted living resident taking nine or more medications including over-the-counter and PRN (as needed) medications.	Every resident of a skilled nursing facility
Frequency	Annually	Every 6 months	Every month
Regulation	Patient Protection & Affordable Care ActSection 10328(CFR § 423.153)	State Regulated: Code of Maryland Regulations COMAR 10.07.14.29.I	Federally Regulated: CMS State Operations Manual: F329 - Unnecessary Medications F428 - Drug Regimen Review
Site of Review	Conducted either face-to-face or via telephone.	On-site at the assisted living facility.	Not specified in regulations. May be conducted on-site or remotely via electronic records.
Documentation	Two main forms of documentation: (1) standardized format to beneficiaries and (2) non-standardized documentation to prescribers/providers. Standardized forms, including a cover letter, medication action plan and personal medication list, may be accessed from the CMS website (https://www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovContra/MTM.html)	The review shall be documented in each patient's chart and communicated to the authorized prescriber and ALF manager or designee. Methods for documentation are to be determined by the pharmacist and the individual facility. A helpful tool, the Assisted Living Pharmacist Medication Review Checklist, can be accessed online for free (http://medmanagement.umaryland.edu/assisted_living).	Pharmacist recommendations must be communicated to the attending physician or nursing director and be recorded in the clinical record. Methods for documentation are to be determined by the pharmacist and the individual facility.
Reimbursement	Medicare Part D plans reimburse for services provided to qualified patients. Each plan contracts separately with an MTM provider.	A contract agreement will be determined between the consultant pharmacist and the skilled nursing facility.	A contract agreement will be determined between the consultant pharmacist and the assisted living facility.

REFERENCE

1. Public Law No: 111-148: H.R. 3590. Patient Protection and Affordable Care Act Section 10328, (CFR § 423.153). March 23, 2010.
2. State of Maryland. Code of Maryland Regulations (COMAR)10.07.14.29.1. Medication Management and Administration. 2009.
3. The Centers of Medicare and Medicaid Services. CMS Manual System: State Operations Manual. Baltimore, MD: Department of Health and Human Services; 2006 Dec. 15, 2006. Report No.: Pub.100-07 Available from: http://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/downloads/R22SOMA.pdf

e-PRESCRIBING and ERRORS

by Don. R. McGuire Jr., RPh, JD
General Counsel, Pharmacists Mutual Insurance Company

> *This series,* Pharmacy and the Law, *is presented by Pharmacists Mutual Insurance Company and your State Pharmacy Association through Pharmacy Marketing Group, Inc., a company dedicated to providing quality products and services to the pharmacy community.*

E-prescribing is here to stay, but it is not the cure-all for prescription errors that some people think. Through my years of handling pharmacy professional liability claims, physicians' handwriting is much less of an issue than most pharmacists would believe. More often than not, illegible prescriptions result in a phone call for clarification, not an error. While not a significant cause of errors, illegible prescriptions definitely impact the pharmacy's workflow and efficiency.

E-prescribing is going to take care of all of the prescription errors, right? Consider the following prescription: Erythromycin ointment, 1 tube, apply UD. The pharmacy filled the prescription with a 25 gram tube of topical erythromycin ointment. The problem was that the physician meant to prescribe a 3.5 gram tube of erythromycin ophthalmic ointment. So the pharmacy had a perfectly legible, *incomplete* prescription. What can a pharmacist do in this situation?

Patient counseling is the solution! The patient was not counseled with this prescription. However, a few simple questions would have uncovered this error. *"What did the doctor tell you this was for?"* and *"How did the doctor tell you to use this?"* The answer to either of these questions would have indicated the ophthalmic route that was not found on the prescription. Patient counseling provides many benefits for both the patient and the pharmacist. First, patient counseling, or at least an offer to counsel, is required by law or regulation. This alone makes patient counseling a good risk management tool. But the real benefit for you and your patients is found when you practice up from this baseline. Counseling allows the pharmacist to detect hidden errors in prescriptions prior to the patients taking them home. Experience shows that many patients will take or use whatever is dispensed to them. Verifying the intent of the prescription and what is being treated is vital to know prior to dispensing.

Also, patient counseling educates the patient about the proper use and storage of their prescription drug. A proper counseling session will allow you to assess the patient's health literacy and provide the proper information to improve their outcomes. Many times pharmacists assume that patients know more about their medications than they really do. This assumption leads to a poor, or even non-existent, patient counseling interaction. Patients do not always ask good questions because of the fear of embarrassment or because they simply don't know what to ask. It is up to the pharmacist to take charge of this interaction and make sure that the patients know what they need to know about their medications.

When the answers provided during the counseling session don't match what the pharmacist or patient expected, then it is time to call the prescriber. This method is much more efficient than calling to verify every e-prescription received. Vague terms in a prescription such as 1 bottle, 1 tube or directions as UD should be red flags to a pharmacist. If the pharmacist can't discern the quantity, directions or the indication from the prescription, then they should interact with the patient to make sure that the patient does. If the pharmacist is still uncertain after talking with the patient, a call to the prescriber is warranted.

Technology can fix many problems, but it can't fix every problem. E-prescribing shouldn't cause pharmacists to let their guard down. It remains for the pharmacist to be diligent and make sure that the patient leaves with the correct medication and knows how to use it.

This article discusses general principles of law and risk management. It is not intended as legal advice. Pharmacists should consult their own attorneys and insurance companies for specific advice. Pharmacists should be familiar with policies and procedures of their employers and insurance companies, and act accordingly.

Third QUARTER

by Dennis B. Worthen
Lloyd Scholar, Lloyd Library and Museum, Cincinnati, OH

1987
Twenty-five years ago

- Major pharmacy issue of the year was the increase in physician office based dispensing.
- Acuvue launched by J&J was the first disposable soft contact lens.

1962
Fifty years ago

- Trivalent oral polio vaccine (Sabin) was licensed in the U.S..
- Rite-Aid (Pennsylvania), Meijer's (Michigan), and Wal-Mart (Arkansas) were formed.

1937
Seventy-five years ago

- Cook County Hospital in Chicago, Illinois was the site of the first blood bank, set up by Bernard Fantus.

1912
One hundred years ago

- Phenobarbital (Luminal) first marketed by Bayer in 1912.

1887
One hundred twenty-five years ago

- The National Institutes of Health established. The National Institutes of Health traces its roots to 1887, when a one-room laboratory was created within the Marine Hospital Service (predecessor agency to the U.S. Public Health Service (PHS).

One of a series contributed by the American Institute of the History of Pharmacy, a unique non-profit society dedicated to assuring that the contributions of your profession endure as a part of America's history. Membership offers the satisfaction of helping continue this work on behalf of pharmacy, and brings five or more historical publications to your door each year. To learn more, check out: www.aihp.org

"But I don't want to take my medicine!"

by Joanna G. Yala, Donna Huynh, Jill A. Morgan

Giving a sick child medicine can sometimes be a nightmare for parents. Children have many more taste buds than adults and are therefore more sensitive to the tastes of medication[1]. The combination of an ill child with a keen sense of taste and an unsavory medication may lead to non-adherence which can cause the child's condition to worsen. According to a survey of children receiving HIV medications, 44% had difficulty taking their medications due to the taste[2]. Studies show that making the taste of medications more pleasing to the child can have a positive effect on compliance[3]. Taste masking can also alleviate some difficulty parents' experience during drug administration and improve treatment success and clinical outcomes.

Many of the products administered to pediatric patients taste awful. Several studies examined the palatability of liquid antibiotics and concluded that the worst tasting medications were dicloxacillin, compounded metronidazole, cefprozil, and amoxicillin-clavulanic acid[4,5]. In addition, a study of 31 adult participants ranked clindamycin and linezolid as the worst in taste and aftertaste[6]. On the other hand, children and adults found that cefdinir, cefixime, amoxicillin, and doxycycline tasted better than the other antibiotics[4,5,7]. Other similar studies analyzed the use of liquid corticosteroids in children with asthma. Prednisone intensol, prednisolone, and prednisone oral solution were rejected the most by children. However, prednisone in cherry syrup and flavored dexamethasone exhibited more appealing flavors and patients preferred those medications over other liquid corticosteroids[8,9].

TABLE 1

Best Flavors for Medication[10]

PALATABILITY	MEDICATION	FLAVORS		
Yuckiest				
	Azithromycin (Zithromax)	Grape	Raspberry	Bubblegum
	Bactrim	Grape	Watermelon	Orange
	Clarithromycin (Biaxin)	Grape	Bubblegum	Sour Apple
	Ceftin	Vanilla	Bubblegum	Grape
	Cephalexin (Keflex)	Apple	Banana	Watermelon
	Cheratussin AC	Cherry	Grape	Raspberry
	Dexamethasone	Grape	Sour Apple	Strawberry
	Erythromycin	Grape	Watermelon	Raspberry
	Iron Supplement	Grape	Lemon	Raspberry
	Nystatin (Mycostatin)	Sour Apple	Watermelon	Cherry
	Oseltamivir (Tamiflu)	Cherry	Bubblegum	Orange
	Penicillin	Grape	Lemon	Watermelon
	Phenobarbital	Banana	Grape	Watermelon
	Prednisolone (Prelone)	Bubblegum	Grape	Apple
	Ranitidine (Zantac)	Grape		
	Tylenol w/Codeine	Raspberry	Grape	Apple
	Vitamin Supplement	Raspberry	Grape	
Yuckier				
	Albuterol (Proventil)	Strawberry	Apple	Grape
	Amox/Clav (Augmentin)	Strawberry	Grape	Bubblegum
	Cetirizine (Zyrtec)	Orange	Bubblegum	Grape
	Clindamycin (Cleocin)	Grapeade	Lemon	
	Promethazine (Phenergan)	Raspberry	Banana	Watermelon
	Promethazine DM	Raspberry	Sour Apple	Watermelon
	SMZ/TMP (Sulfatrim)	Apple	Bubblegum	Raspberry
Yucky				
	Amoxicillin (Amoxil)	Grape	Watermelon	Raspberry
	Cefdinir (Omnicef)	Raspberry	Grape	Apple
	Hydrocodone/APAP (Lortab)	Sour Apple	Watermelon	Grape

Adapted from FLAVORx Wheel of Yuck.
http://flavorx.com/products/pediatric-medication-flavoring/wheel-of-yuck/

Palatability is an important consideration in pediatric medication adherence and several methods are used to enhance the taste of medicines. One method involves FLAVORx, a flavoring system for thousands of liquid medications including antibiotics and over-the-counter medicine[10]. It removes the bitter, chalky taste and unpleasant smells of liquid medicines. FLAVORx provides parents with several flavor options ranging from bubblegum to chocolate to sour apple. Pharmacists can even customize flavors specific to a child's preference, like banana-orange, chocolate-cherry, or grape-bubblegum. While not all flavors work for all drugs, *Table 1* summarizes the recommended flavors for the most commonly flavored medications. For medications in which there is no liquid formulation available, FLAVORx developed Pill Glide. Pill Glide is a water-based lubricating, sugar-free spray that helps patients swallow tablets and capsules without difficulty while masking the bad taste[10]. In most cases, children are able to swallow the medication on their first attempt using Pill Glide[11]. The spray also comes in five flavors: orange, strawberry, grape, peach, and bubblegum and is available for purchase online or at pharmacies. Yo Gabba Gabba spray, another product to help with swallowing medications, masks the unwanted taste of some medicines[10]. A parent can simply coat a child's mouth with Yo Gabba Gabba. With the appealing taste of the spray in the child mouth, the child will consume the medications without the apprehension caused by an unpleasant aftertaste. Yo Gabba Gabba and similar products are a convenient, effective, and worthwhile way to ensure that a child takes their medicine as directed. For parents interested in these products, Yo Gabba Gabba and Pill Glide can be bought online for $9.99 and $6.99, respectively[12]. FLAVORx is available at Target free of charge, Wal-Mart for $2, and Walgreens and CVS for $2.99[13].

If FLAVORx is not available at the pharmacy, pharmacists can change the flavor of medications through compounding. For example, prednisone tablets can be crushed and suspended in cherry syrup[9]. Pediatric patients who have taken ranitidine syrup may not appreciate its strong peppermint taste. To make it more palatable to children, the pharmacist can create a suspension from pure ranitidine by excluding its peppermint flavoring from the compounded dosage form[1]. Salty drugs like diphenhydramine or promethazine can also be mixed into chocolate or orange syrup made from sugar, water, and frozen orange juice concentrate.

LEARNING OBJECTIVE: After completing this educational program, the participant will be able to:

- Identify strategies that can be used to improve the flavor of medications and aid in the consumption by children and others.
- List 3 benefits associated with making the flavor of medications more appealing.

Keywords: palatability, medication, compliance, pediatrics, flavoring agents, taste, antibiotics

Bitter tasting drugs can be masked with cherry syrup, chocolate syrup, or cinnamon[14,15]. Taking stability of the drug into consideration, compounding pharmacists can concoct a tasteful product from almost any medication[1]. Resources for finding recipes include: Lexi-Comp Pediatric Dosage Handbook, Micromedex, International Journal of Pharmaceutical Compounding, Pharmacy Times, and Extemporaneous Formulations for Pediatric, Geriatric, and Special Needs Patients. *Table 2* provides a list of drugs with a salty or bitter taste.

Another option to improve the palatability of medications is to have parents crush tablets or sprinkle the contents of capsules into yogurt, pudding, applesauce, sherbet, ice cream or juices. It is important that the medication is mixed in a small amount of food to ensure that the child receives the entire dose. However, caution should always be taken when advising patients to mix the drug into food. For example, omeprazole, which is often used in pediatric patients with gastroesophageal reflux disease, should not be stirred in acidic juices because the drug is quickly destroyed[1]. Parents should be warned that the calcium in dairy products may decrease the absorption of iron found in multivitamins[1]. However, iron absorption is increased when mixed with acidic juices[1]. Resources for finding information on this topic include: Lexi-Comp Pediatric Dosage Handbook and the package insert.

TABLE 2

Salty and Bitter Medications[1, 14, 15, 20]

TASTE	MEDICATION	
Salty	Thyroid Medications	
	Chemotherapy	
	Diphenhydramine	
	Promethazine	
Bitter	Bronchodilators	Rifampin
	Clarithromycin	Captopril
	Griseofulvin	Thyroid Medications
	Lithium	

TABLE 3

Ways to Improve Taste of Medicine

AT-HOME	PRODUCTS FOR PURCHASE	COMPOUNDING
Mix salty drugs into chocolate or orange syrup	FLAVORx	Suspend drug in syrups
Mix bitter drugs into cherry syrup, chocolate syrup, or cinnamon		
Crush tablet or sprinkle capsule contents into small quantities of yogurt, pudding, applesauce, sherbet, ice cream, or juice	Pill Glide	Compounding recipes
Numb child's taste buds with popsicles or ice cream	Yo Gabba Gabba spray	
"Chase" down medication with juice or eat peanut butter or chocolate		

It is also critical to inform patients that certain formulations like slow-release products should not be broken apart. In addition, crushing or opening capsules may make the product taste worse.

Children may have an easier time taking their medicine if they eat popsicles or ice cream beforehand to slightly numb their taste buds[16]. Last, if the aftertaste is the problem, it is advisable to have the child quickly "chase" it down with juice, or eat peanut butter or chocolate syrup if they are not allergic. If the options above are not successful, consider contacting the physician to change the medication to a better tasting liquid, use an alternative dosage formulation such as oral-disintegrating tablets, or a more concentrated suspension to decrease the volume[17,18].

When children are sick and forced to take medicine against their liking, allowing them to choose the flavor of their medicine helps them feel like they have some control. In pediatric patients, medication adherence is highly dependent on the taste of the drug[19]. *Table 3* summarizes various ways taste can be improved. Although the addition of flavoring agents helps mask the initial taste of the medication, it is important to remember that suppressing the unpleasant aftertaste is more difficult[5]. Overall, masking the bitter taste of a medication can reduce the parents' struggle when administering the drug, enhance pediatric medication compliance, and increase treatment success, resulting in improved clinical outcomes.

REFERENCES

1. Cabaleiro J. Flavoring Meds for Children and Adults So It Goes Down Easy!. *Home Healthcare Nurse.* 2003;21(5):295-8.
2. Matsui D. Current Issues in Pediatric Medication Adherence. Pediatric Drugs. 2007;9(5):283-88.
3. Winnick S, Lucas DO, Hartman AL, Toll D. How do you improve compliance? Pediatrics. 2005;115(6):718-24.
4. Gee SC, Hagemann TM. Palatability of Liquid Anti-Infectives: Clinician and Student Perceptions and Practice Outcomes. *The Journal of Pediatric Pharmacology and Therapeutics.* 2007;12(4):216-23.
5. Angelilli ML, Toscani M, Matsui DM, Rieder MJ. Palatability of Oral Antibiotics Among Children in an Urban Primary Care Center. *Archives of Pediatrics & Adolescent Medicine.* 2000;154:267-70.
6. Steele RW, Russo TM, Thomas MP. Adherence Issues Related to the Selection of Antistaphylococcal or Antifungal Antibiotic Suspensions for Children. Clinical Pediatrics. 2006;45(3):245-50.
7. Holas C, Chiu Y, Notario G, Kapral D. A Pooled Analysis of Seven Randomized Crossover Studies of the Palatability of Cefdinir Oral Suspension Versus Amoxicillin/Clavulanate Potassium, Cefprozil, Azithromycin, and Amoxicillin in Children Aged 4 to 8 Years. *Clinical Therapeutics.* 2005;27(12):1950-60.
8. Hutto CJ, Bratton TH. Palatability and Cost Comparison of Five Liquid Corticosteroid Formulations. *Journal of Pediatric Oncology Nursing.* 1999;16(2):74-7.
9. Hames H, Seabrook JA, Matsui D, Rieder MJ, Joubert GI. A Palatability Study of a Flavored Dexamethasone Preparation Versus Prednisolone Liquid in Children with Asthma Exacerbation in a Pediatric Emergency Department. *Canadian Journal of Clinical Pharmacology.* 2008;15(1):95-8.
10. FLAVORx. 2011. Available at: http://flavorx.com/products/pediatric-medication-flavoring/wheel-of-yuck/. Accessed May 26, 2011.
11. Diamond S, Lavallee DC. Experience with a pill-swallowing enhancement aid. Clinical Pediatrics. 2010:49(4):391-3.
12. Amazon.com. 2011. Available at http://www.amazon.com/. Accessed August 30, 2011.
13. King-Cohen SE. Target adds flavors to children's medicines free. McClatchy - Tribune Business News. January 2, 2008:1.
14. Remington JP, Beringer P. Remington: The Science and Practice of Pharmacy. 21st ed. Philadelphia: Lippincott Williams & Wilkins; 2005. 2393 p.
15. Better Medicine [Internet]. Colorado: Health Grades, Inc.; 2011 June 4 [cited 2011 Nov 18]. Available from: http://www.bettermedicine.com/article/bitter-taste-in-mouth/causes.
16. Helping Your Child Take Medicine. Seattle Children's. 2009. Available at: www.seattlechildrens.org/pdf/pe398.pdf. Accessed May 24, 2011.
17. Cohen IT, Joffe D, Hummer K, Soluri A. Ondansetron Oral Disintegrating Tablets: Acceptability and Efficacy in Children Undergoing Adenotonsillectomy. Anesthesia & Analgesia. 2005;101(1):59-63.
18. Powers JL. Properties of azithromycin that enhance the potential for compliance in children with upper respiratory tract infections. The Pediatric Infectious Disease Journal. 1996; 15(9): 30-7.
19. Ramgoolam A, Steele R. Formulation of Antibiotics for Children in Primary Care: Effects on Compliance and Efficacy. Pediatric Drugs. 2002;4(5):323-333.
20. Riverside [Internet]. Minnesota: Mayo Foundation for Medical Education and Research: 2006 Aug 14 [cited 2001 Nov 23]. Available from: http: www.riversideonline.com/health_reference/Ear-Nose-Throat/AN01411.cfm.

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Did the article achieve the stated objectives?	Not at all	1	2	3	4	5	Completely
Overall evaluation of the article	Poor	1	2	3	4	5	Excellent
Was the information relevant to your practice?	No	1	2	3	4	5	Yes

How long did it take you to read the article and complete the exam? __________ (minutes)

1 What is one benefit of flavoring medications for children?
a. makes medication taste like candy
b. allows pharmacy to charge an additional fee
c. makes it harder for caregivers to give medications
d. improved adherence

2. Based on FLAVORx recommendations, nystatin can be flavored with all of the following flavors EXCEPT?
a. watermelon
b. strawberry
c. cherry
d. sour apple

3. A mother comes into your pharmacy explaining that her son will not take his iron tablets. What can she do to get him to take his iron supplement?
a. have the child eat something cold beforehand to numb taste buds
b. mix the medication in a large container of yogurt
c. administer iron with milk
d. switch from drops to suspension

4. Resources for flavoring recipes include
a. Lexi-Comp Pediatric Dosage Handbook
b. Micromedex
c. International Journal of Pharmaceutical Compounding
d. Extemporaneous Formulations for Pediatric, Geriatric, and Special Needs Patients
e. all of the above

5. Masking the taste of medications
a. does not increase treatment success
b. enhances the effects of the drug
c. improves clinical outcomes
d. decreases the effectiveness of the drug

6. Products like Pill Glide and Yo Gabba Gabba
a. change the flavor of the medication
b. change the dosage formulations
c. numbs the child's mouth
d. mask the taste of the medication

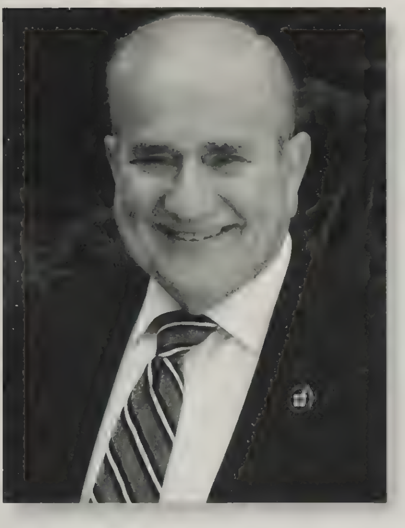
7. Which of the following at-home strategies can help mask the taste of medications?
a. Mix salty drugs into chocolate or orange syrup
b. Mix bitter drugs into chocolate syrup
c. Crush tablet or sprinkle capsule contents into small quantities of yogurt
d. All of the above

8. Aside from flavoring, which of the following strategies can help improve a child's experience with poor-tasting medication?
a. avoid aftertaste by quickly "chasing" it down with juice or eat peanut butter or chocolate syrup
b. administer iron with milk
c. mix omeprazole with acidic juices
d. mix salty drugs with cherry syrup

9. Which of the following is not a benefit of masking the taste of medication?
a. improved clinical outcomes
b. enhance adherence to pediatric medications
c. increase treatment success
d. reducing the child's level of control

10. In order to help mask the taste, which of the following medications should be mixed into chocolate, orange syrup made from sugar, water, or frozen orange juice concentrate?
a. Captopril
b. Griseofulvin
c. Diphenhydramine
d. Rifampin

EXECUTIVE DIRECTOR'S MESSAGE



> Pharmacists have a higher profile because Congress is impressed by our effort to eliminate the great cost to the health care system due to non-adherent patients.

In late June, the Supreme Court upheld most of the Affordable Care Act (ACA), also known as "ObamaCare" by a 5–4 margin. Regardless of your political views, one has to agree that the Act is favorable for Pharmacy.

ACA not only provides health care and prescription drug coverage for an additional 30 million Americans, it also provides for the eventual elimination of the "donut hole" in Medicare Part D. The Act also allows for a new payment model based on 175% of the average manufacturer price. Although it appears this model may be flawed, it is better than what had previously been proposed.

If ACA is overturned after the election, we have made the case that pharmacists involvement has significantly improved health care in diverse populations.

Medication Therapy Management (MTM) opportunities are supported in the ACA and with or without it, pharmacists are moving forward to achieve their goal of being formally recognized as health care providers. For instance, through the Patient Safety and Clinical Pharmacy Services Collaborative (PSPC) under the Health Services and Resources Administration (HRSA), integration of clinical pharmacy services has improved patient health outcomes and patient safety in previously underserved populations. One of these efforts is a program at the Mercy Health Clinic Primary Care Coalition of Montgomery County, that is led by MPhA member Hoai- An Truong, and of which MPhA is a proud partner.

In another successful program, MPhA members Kristen Fink and Christine Lee are providing collaborative practice in a community practice setting while the P3 Program, jointly run by the University of Maryland School of Pharmacy and MPhA, is making great strides in diabetes and hypertension management. Additionally, through the efforts of Winston Wong , Vice-President of Pharmacy Services at CareFirst, OutcomesMTM is available in all CareFirst policies in Maryland.

Pharmacists have a higher profile because Congress is impressed by our effort to eliminate the great cost to the health care system due to non-adherent patients. The light goes on in a bureaucrat's mind when the realization of what pharmacists can do finally strikes them. Locally, the Maryland Health Care Reform Coordinating Council had moved ahead with health care reform well before the Supreme Court decision. The framework for health insurance exchanges for individuals and small markets to reduce the number of uninsured Marylanders has been set up. These policies will include prescription coverage.

There are still challenges. The giant PBMs are going to try to convince the powers that be that they can deliver prescriptions more inexpensively through mail order. We must make them realize that prescription drugs are not commodities, that pharmacist are health care professionals, that our services are an integral component of health care and as the trained medication experts that pharmacist are, we can deliver them.

Howard Schiff

Howard Schiff, PD, Executive Director
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Please accept my humble thanks for allowing me the opportunity to serve as your President this past year. I have cherished this time working closely with the Association and our staff ...

Progress continues at MPhA and the staff continues to work hard to implement our new programs and technology. We should all be very thankful to Howard, Peggy, Elsie, and Nancy for their efforts as they helped facilitate two wonderful events within the same week in February—MPhA/MD-ASCP Mid-Year Meeting and the 13th Annual Legislative Day. Collaboration was the theme of the Mid-Year Meeting as we once again partnered with MD-ASCP to present a wonderful program of speakers that were well received by the approximately 300 pharmacists and pharmacy technicians in attendance. We heard comments like "Great networking opportunity", and "I always learn something that I can take back to my pharmacy". This meeting continues to grow in popularity and MPhA is hoping to expand further next year to add an additional CE track with our friends at the Maryland Society of Health-System Pharmacists (MSHP). Special thanks go out to our Meetings and Convention Committee, chaired by Doris Voigt, for all of their efforts in organizing this event.

Immediately following the Mid-Year Meeting, we changed gears and prepared for Pharmacy Legislative Day in Annapolis. We had another record turnout with our colleagues at MPC. Representatives from all of the professional pharmacy organizations in the state including over 350 students and pharmacists converged on Annapolis. After receiving words of encouragement from Thomas Menighan, APhA CEO, and MPhA member, we descended on the House and Senate offices to help our elected officials understand the importance of pharmacists and the need for passage of several bills. Included in our list of legislation this year were bills to expand immunization privileges for pharmacists and one to ensure safety of medications through tighter requirements for physician dispensing. Most notable about this day, was the increase of pharmacists in attendance this year. This was a particular focus for MPhA, as we have worked to educate pharmacists on the importance of this day. Many of us at MPhA went together and filled an entire bed and breakfast on State Circle. Making an overnight trip of it made the early morning easier to tolerate and gave us a great opportunity the night before to socialize in Annapolis. For those of you who have not been able to attend in recent years, I highly recommend that you to join us in 2014. I would also like to recognize Chai Wang, chair of the MPC Legislative Committee, who dedicated hours to making this year one of the most successful Legislative Days in our history.

This year's theme of collaboration continued with our First Annual Maryland Pharmacy Welcome Night Reception at the JW Marriott Live during the APhA Meeting and Exposition in Los Angeles, CA. We had the honor of partnering with the Notre Dame of Maryland University School of Pharmacy, University of Maryland Eastern Shore School of Pharmacy, and the University of Maryland School of Pharmacy to host our first reception. MPhA used the event to celebrate the accomplishments of Maryland pharmacists as well as student pharmacists over the last year. It is our goal to build on the success of this event in years to come.

It has been a busy couple months and we hope that you have had the opportunity to participate in one or more of these wonderful events. If not, be sure to read the *Monday Message* and look out for the New Practitioner Network (NPN) and membership recruitment events being planned in the near future.

Time has flown by so quickly this past year as we have tried to complete many new and exciting initiatives for the Association. Please accept my humble thanks for allowing me the opportunity to serve as your President this past year. I have cherished this time working closely with the Association and our staff and I hope to see you all in Ocean City for the Annual Convention June 8–11.

Sincerely,

Brian M. Hose

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Contents

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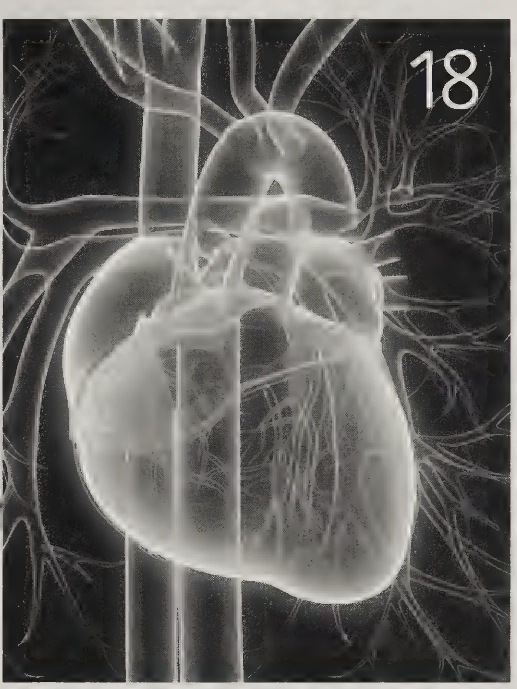

FEATURES

4 Patient Safety series — Article 4

8 How Maryland Pharmacists Survived the Flu Season

11 Pharmacy CE on the Caribbean Sea

16 Parents, Alzheimer's & Money
Easing into a Difficult Conversation

18 Aldosterone Antagonists in the Treatment of Systolic Heart Failure

DEPARTMENTS

9 TechTalk
13 Legislative Advocacy
18 Continuing Education
24 Member Mentions
26 CE Quiz

ADVERTISERS INDEX

7 **McKesson**
12 **Cardinal Health Foundation**
14 **Carefirst**
23 **Buy-Sell-A-Pharmacy**
25 **Pharmacists Mutual Insurance Company**
28 **Caremerica**

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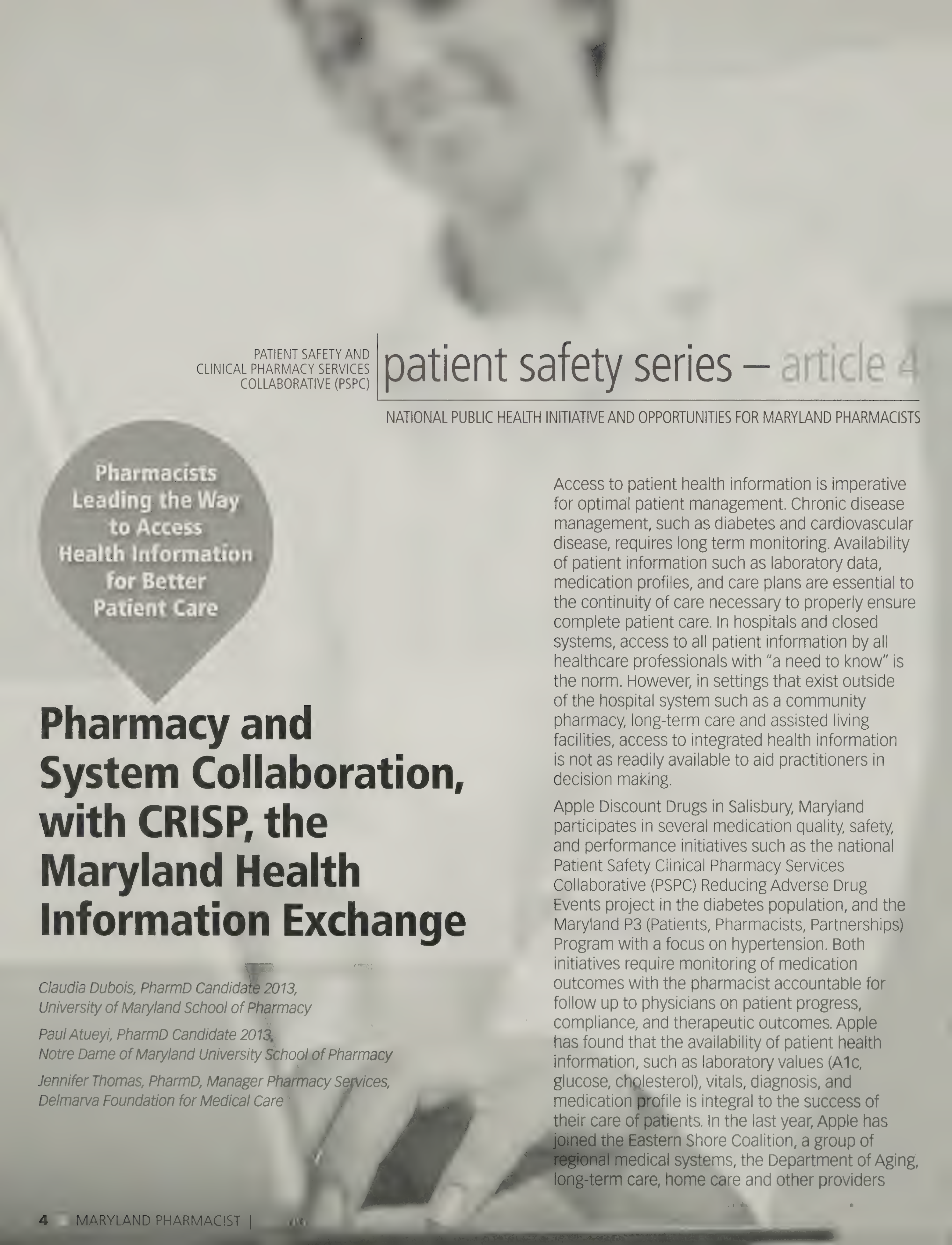

PATIENT SAFETY AND
CLINICAL PHARMACY SERVICES
COLLABORATIVE (PSPC)

patient safety series – article 4

NATIONAL PUBLIC HEALTH INITIATIVE AND OPPORTUNITIES FOR MARYLAND PHARMACISTS

Pharmacists Leading the Way to Access Health Information for Better Patient Care

Pharmacy and System Collaboration, with CRISP, the Maryland Health Information Exchange

*Claudia Dubois, PharmD Candidate 2013,
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Access to patient health information is imperative for optimal patient management. Chronic disease management, such as diabetes and cardiovascular disease, requires long term monitoring. Availability of patient information such as laboratory data, medication profiles, and care plans are essential to the continuity of care necessary to properly ensure complete patient care. In hospitals and closed systems, access to all patient information by all healthcare professionals with "a need to know" is the norm. However, in settings that exist outside of the hospital system such as a community pharmacy, long-term care and assisted living facilities, access to integrated health information is not as readily available to aid practitioners in decision making.

Apple Discount Drugs in Salisbury, Maryland participates in several medication quality, safety, and performance initiatives such as the national Patient Safety Clinical Pharmacy Services Collaborative (PSPC) Reducing Adverse Drug Events project in the diabetes population, and the Maryland P3 (Patients, Pharmacists, Partnerships) Program with a focus on hypertension. Both initiatives require monitoring of medication outcomes with the pharmacist accountable for follow up to physicians on patient progress, compliance, and therapeutic outcomes. Apple has found that the availability of patient health information, such as laboratory values (A1c, glucose, cholesterol), vitals, diagnosis, and medication profile is integral to the success of their care of patients. In the last year, Apple has joined the Eastern Shore Coalition, a group of regional medical systems, the Department of Aging, long-term care, home care and other providers in the community, facilitated by Delmarva Foundation for Medical Care (DFMC), with the focus of reducing hospital admissions and readmissions. The difficulties Apple pharmacists encountered with attempts to obtain the requisite health information from either patients or prescribers on a consistent basis, has led them to outreach to the local community for solutions. Jeff Sherr, John Motsko, and Geoff Twigg from Apple Discount Drugs, Chris Snyder and Dennis Killian from Peninsula Regional Medical Center (PRMC), Jennifer Thomas from DFMC and Cynthia Boyle and Hoai-An Truong from The University of Maryland Eastern Shore School of Pharmacy, are collaborating to assist Apple in achieving viable health information exchange in the community. As a result, Apple has registered with the Maryland Health Information Exchange (HIE) and with Peninsula Regional Medical Center's patient health record vendor RelayHealth to ensure they have access to the health information required for optimal medication management.

The Health Information Technology for Economic and Clinical Health Act (HITECH Act) is a part of the American Recovery and Reinvestment Act of 2009 (ARRA). The ARRA created incentives related to health care information technology including specific incentives to accelerate the adoption of electronic health record systems among providers. From this legislation came the push for mobilization of healthcare information electronically across organizations within a region, community or hospital system. Health information Exchange (HIE), a component of AARA, provides the capability to electronically move clinical information amongst different health information systems while maintaining the meaningful information contained in the EHR. Each state has created organizations responsible for making this legislation a reality.[2]

The not-for-profit corporation Chesapeake Regional Information System for Our Patients (CRISP) was selected as Maryland's statewide HIE by the Maryland Health Care Commission[3]. CRISP was also selected as Maryland's Regional Extension Center for Health (REC) with an objective of assisting primary care providers to deploy electronic health records (EHR) and achieve meaningful use by the year 2014[3]. Clinical data sharing with other providers and hospital systems across the state is the ultimate goal. The organization has recently opened HIE access to a pilot group of pharmacists participating in the University of Maryland School of Pharmacy P3 (Patients, Pharmacists, Partnerships) Program. Apple Group is the initial P3 pharmacy to register with the Maryland CRISP and access health information for patients they manage. Although, all health information is not currently available in the HIE, it is expected to increase significantly in the coming years.

> "The exchange of patient data (e.g., laboratory values, medication lists) from acute care facilities to community pharmacists is necessary to allow for enhanced continuity of care. Without this information readily available, the community pharmacist is often placed in a reactive role to address patient medication concerns or adverse events."
>
> *— Dennis Killian*
> *Pharmacy Director, PRMC*

Peninsula Regional Medical Center (PRMC) is a major provider of health care services in the Eastern Shore and is a leader in utilization of technology solutions[4]. Early innovations included use of robotics in selecting barcoded medications for patients since the late 90's[5]. In recent years PRMC's integrated electronic health information and bedside medication safety initiatives provide mechanisms for improvements in documentation, communication, measurement and performance[4, 5]. PRMC is a participating health system exchanging health information with the HIE. Patients may access their own health record through an interconnected program, MyPenCare (mypencare.org), an on-line personal health record, powered by RelayHealth. According to PRMC Pharmacy Director Dennis Killian, "the exchange of patient data (e.g., laboratory values, medication lists) from acute care facilities to community pharmacists is necessary to allow for enhanced continuity of care. Without this information readily available, the community pharmacist is often placed in a reactive role to address patient medication concerns or adverse events." An invitation to access a patient's MyPenCare record is extended to physicians and pharmacists upon completion of the provider/pharmacist information during the patient's registration process[5].

The collaboration among stakeholders in the Eastern Shore Coalition is consistent with recommendations of the Pharmacy Electronic Health Information Technology (eHIT) Collaborative and "The Roadmap for Pharmacy Health Information Technology Integration in U.S. Health

Care". Professional pharmacy organizations and other key stakeholders endorse the Pharmacy eHIT Collaborative to help ensure that pharmacists have access to electronic health records and the information they contain. The Roadmap is a strategic plan that describes the Pharmacy eHIT Collaborative goals for 2010–2015. It includes goals to: ensure HIT supports pharmacists in health care delivery; achieve integration of clinical data with electronic prescribing (e-prescribing); recognize pharmacists in existing programs and policies of bi-directional exchange of information, including that generated by pharmacists; ensure HIT infrastructure includes and supports medication therapy management (MTM); and integrate pharmacist-delivered immunizations into the EHR.[6] The successful use of HIT by pharmacists in existing and developing patient care delivery models will help to demonstrate the value of pharmacists in HIT. These systems will allow pharmacists to provide well-documented evidence of their ability to improve patient care with clinical services that reduce both morbidity and mortality.

Apple Drugs is leading the way for pharmacists in Maryland to achieve national professional goals of electronic health record connectivity that improves patient care services they provide. Initiatives such as the Patient Safety Clinical Pharmacy Services Collaborative and the University of Maryland School of Pharmacy P3 Program of which the Maryland Pharmacists Association is a proud partner provide opportunities and recognition of pharmacists as providers of medication management. The use and application of this new technology will bring solutions that may ultimately help pharmacists to decrease the cost of health care, improve the quality of care, and improve the efficiency with which we deliver care to our patients. The challenge now is for all pharmacists to join in the efforts to achieve interconnectivity.

This material was prepared by Delmarva Foundation for Medical Care (DFMC), the Medicare Quality Improvement Organization for Maryland, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. 10SOW-MD-ADE-021413-278.

REFERENCES

1 Apple Discount Drugs. www.appledrugs.com Accessed November 2, 2012

2 Blumenthal, D. (2010). "Launching HITECH". New England Journal of Medicine 362 (5): 382–385. doi:10.1056/NEJMp0912825. PMID 20042745. Accessed January 27, 2013.

3 CRISP Chesapeake Regional Information System for our Patients. http://www.crisphealth.org/Home/tabid/150/Default.aspx Accessed November 6, 2012

4 Peninsula Regional Medical Center. Patient and Medication Safety Initiatives. http://www.peninsula.org/body.cfm?id=174. Accessed December 2, 2012

5 Health Focus Fall 2012 http://www.peninsula.org/documents/HealthFocus/HealthFocus%20Fall%202012_web.pdf accessed December 2, 2012

6 The Roadmap for Pharmacy Health Information Technology Integration in U.S. Health Care http://www.pharmacyhit.org/pdfs/11-392_RoadMapFinal_singlepages.pdf accessed December 2, 2012

PSPC Team Recognized

Congratulations to the Patient Safety and Clinical Pharmacy Services Collaborative (PSPC) Team for being selected as an award recipient of The Change Package Implementation Awards — **MEASURABLE IMPROVEMENT**. They were officially recognized at the PSPC 4.0 Awards celebration in January.

Top, left to right: Rick Hall, Tanya Dang, Jennifer Thomas, Hoai-An Truong, Peggy Funk, Faramarz Zarfeshan. Team members not pictured: Rosemary Botchway, Heather Congdon.

Jennifer Thomas, bottom right, was individually recognized during the celebration with a QIO Award Partner Award.

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How Maryland Pharmacists Survived the Flu Season

Jane Ching, PharmD Candidate 2016 and Jamie Nguyen, PharmD Candidate 2016, University of Maryland School of Pharmacy

Influenza continues to be a significant public health threat. While vaccines are designed annually to reduce the likelihood of catching the flu, significant challenges remain in providing appropriate access to the vaccine. In the 2012–2013 flu season, increased media coverage as a result of warnings of a severe epidemic resulted in significant vaccine shortages around the nation. The effects of the shortage were felt at many pharmacies, resulting in significant wait times as well as depleted vaccine inventories. At the same time, the increased vaccination rates resulted in over 166 million doses of influenza vaccines distributed nationally.

According to the Center of Disease Control and Prevention (CDC), from October 1, 2012 – March 2, 2013, roughly 490,000 influenza-like-illness (ILI) cases were reported nationally. Patients at an especially high risk for contracting the flu are children younger than 2 years old and adults 65 and older. However, individuals with chronic diseases, immunocompromised, pregnant, and morbidly obese are also at a high risk. For these individuals, vaccinations are highly recommended because flu vaccines are most effective in high-risk populations. Studies estimate that flu vaccines can prevent between 56% – 73% of influenza-induced hospitalizations in adults 50 and older. Without a doubt, increasing vaccination outreach continues to be a paramount public health concern.

At the state level, the state health influenza surveillance activity reports revealed that the highest incidence of influenza-like illnesses occurred from mid-December 2012 through mid-January 2013. This season's flu epidemic was estimated to have affected more than 15,000 Maryland residents who presented flu-like symptoms in emergency rooms and doctor offices. Given these overwhelming numbers of affected Marylanders, pharmacists significantly contributed to public health by increasing the number of vaccinations performed at their community and clinical practices. While vaccinations are commonly administered in a physician's office, typically about 20% of all vaccinations are given at pharmacies.

Pharmacists responded to a recent MPhA survey addressing their reactions to the recent flu epidemic and the increased media coverage. Their responses to the questions below provided insight into the efforts led by local pharmacists at the forefront of the flu epidemic.

Approximately how many flu shots have you administered this past season?

According to respondents, the number of flu shots administered ranged from 70–600 doses, although most respondents reported administration of approximately 500 doses.

What are some barriers (e.g. financial factors, religious beliefs) that affect whether or not your patients get vaccinated?

The survey revealed that one common barrier preventing patients from getting vaccinated includes misconceptions of contracting the flu from the vaccine. While patients are not expected to contract the flu from the vaccine, on rare occasions, severe allergic reactions can occur. Since July 1, 2005, patients harmed by the flu vaccine can file a claim for compensation from the National Vaccine Injury Compensation Program. In addition to providing vaccinations, pharmacists throughout the state of Maryland continue to support vaccination efforts indirectly by providing valuable patient education regarding the vaccine.

Billing and insurance complications were additional barriers common among responses. Some pharmacies indicated that they could not bill Medicare under Part B coverage. In addition, not all private insurance plans cover vaccinations performed at pharmacies. Finally, lack of patient awareness regarding their own health insurance plan further complicates vaccination outreach. Without knowing whether they are covered for vaccinations, patients simply chose to opt out of the preventative care.

What has your pharmacy/organization done to improve the number of people getting vaccinated?

In response to the need to increase vaccination outreach, local pharmacies have taken action in a variety of ways. Marianne Knotts, a pharmacist at Walgreens in Oakland, Maryland, identified that her clinic offers free flu vaccine vouchers. Independent pharmacy owners, such as Neil Leikach from Catonsville pharmacy, obtained grants from the Maryland Partnership for Prevention, a non-profit organization that promote vaccinations and disease preventions, to fund his vaccination program. On a state level, many pharmacies utilized advertising and collaboration between physicians as tools to increase vaccinations and patient education.

Pharmacists are at the forefront for patient education and disease prevention because of their accessibility. This survey reveals that there is still much room for increasing outreach to communities, and promoting collaborative efforts to increase public health initiations.

More information for healthcare providers can be found at CDC Fluview website: http://gis.cdc.gov/grasp/fluview/fluportaldashboard.html. For information on the Maryland Partnership for Prevention, visit: http://www.immunizemaryland.org/.

PTCB ANNOUNCES

Certification Program Changes

In February, the Pharmacy Technician Certification Board (PTCB) announced future changes to the PTCB Certification Program. The new changes will advance pharmacy technician qualifications by elevating PTCB's standards for national certification and recertification. During the next seven years, PTCB will phase in the changes, including mandatory background checks, accredited education requirements, and changes in acceptable continuing education (CE) programs for recertification.

"PTCB is elevating our certification requirements in order to meet the demands of the evolving healthcare system," said PTCB Executive Director and CEO Everett B. McAllister, MPA, RPh. "We have made bold decisions on what will be required for candidates to become certified pharmacy technicians (CPhTs). Our Board of Governors is sharply focused on ensuring that the PTCB Program prepares CPhTs for the integral roles they play in supporting pharmacists in all practice settings." PTCB's requirements have remained largely unchanged since the organization's founding in 1995.

The PTCB Board of Governors decided that new candidates for PTCB certification will be required to complete criminal background checks, beginning in, or around, 2014. Many employers already require background checks as a condition of employment, and PTCB plans to collaborate with stakeholders to synchronize with the existing systems.

As part of the 20 hours of CE required for recertification, individual CPhTs will need to complete one hour of medication safety CE, effective in 2014, in addition to the one hour of law CE already required. By 2015, PTCB will require all 20 recertification CE hours to be pharmacy technician-specific. Many existing CE offerings already fit this definition. The allowable CE hours from college courses will be reduced from 15 to 10 by 2016, and allowable in-service hours will be phased out by 2018.

By 2020, PTCB will require candidates for initial PTCB certification to successfully complete an American Society of Health-System Pharmacists (ASHP)-accredited education program. ASHP-accredited programs include didactic course work and practical experience, thereby providing well-rounded training for technicians.

These program changes are the result of a PTCB initiative which began with a 2011 summit focused on five areas related to pharmacy technicians: Consumer Awareness, Resources, Education, State Policy and Testing (C.R.E.S.T.). Summit attendees included pharmacists, certified pharmacy technicians (CPhTs), educators, major employers, state boards of pharmacy, and others. Summit findings, combined with results from two profession-wide surveys, called for PTCB and the pharmacy profession to make decisive changes in certification standards.

For more information visit www.ptcb.org

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Alaska

Hal Wand
Arizona

Donald L. Hedden
Arkansas

Melvin K. Renge, Jr
California

Jeannine Dickerhofe
Colorado

Paul Limberis
Colorado*

Scott Wolak
Connecticut

Kimberly Couch
Delaware

Angela D. Adams
Florida

William Moye
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Kelly S.M. Go
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Randy Malan
Illinois

Gerald Roesener
Indiana

Eugene Lutz
Iowa

Marvin E. Bredehoft
Kansas

George Hammons
Kentucky

Roxie Stewart
Louisiana

Joe Bruno
Maine

The “Bowl of Hygeia”

Frank Nice
Maryland

Edward S. Radock
Massachusetts

Gregory Baise
Michigan

Larry Leske
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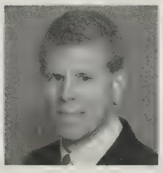
Matt Hartwig
Missouri

Jim Seifert
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Texas

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Michelle Valentine
Washington

Eric Belldina
West Virginia

Gary Bongey
Wisconsin

Tonya Woods
Wyoming

NASPA

The Bowl of Hygeia award program was originally developed by the A. H. Robins Company to recognize pharmacists across the nation for outstanding service to their communities. Selected through their respective professional pharmacy associations, each of these dedicated individuals has made uniquely personal contributions to a strong, healthy community. We offer our congratulations and thanks for their high example. The American Pharmacists Association Foundation, the National Alliance of State Pharmacy Associations and the state pharmacy associations have assumed responsibility for continuing this prestigious recognition program. All former recipients are encouraged to maintain their linkage to the Bowl of Hygeia by emailing current contact information to awards@naspa.us. The Bowl of Hygeia is on display in the APhA Awards Gallery located in Washington, DC.

APhA
FOUNDATION

Boehringer Ingelheim is proud to be the Premier Supporter of the 2012 & 2013 Bowl of Hygeia program.

**2011 recipient awarded in 2012*

PHARMACY CE ON THE Caribbean Sea

Melvin Lessing, MPhA Member

On January 6, 2013, I arrived at the Port Everglades Cruise Terminal in Ft. Lauderdale where the elaborate and extensive passenger processing occurred. After standing in several long lines, and providing proof of identity, financial accountability, and a legitimate purpose for seeking access to the cruise ship, I was eventually permitted to climb the lengthy incline and finally enter the magnificent 122,400-ton, 16-deck Celebrity Silhouette. Each passenger was handed a stemmed glass of cold, bubbling champagne as a welcoming present, portending the gracious, exciting week to come.

The MPhA Cruisers

Photo by Arnold J. Honkofsky

Locating my assigned eighth-deck cabin for the first time aboard the ship required a particular sort of lengthy, trial-and-error, corridor decisions. Having eventually settled in the comfortable, well-designed stateroom, I proceeded to initiate the exploration of a remarkable floating city. The extravagant dining accommodations included a huge two-deck dining room, an extensive intercontinental buffet that continuously provided gourmet nourishment 14 hours daily, specialty restaurants, an actual grassy lawn and grill, select food counters throughout the ship and fine ice cream dispensed upon request. There was a plethora of elaborate and intimate bars and lounges throughout. In one comfortable tavern, the Baltimore contingent watched the playoffs, cheering the Ravens to a narrow victory over the Denver Broncos, later to convey honor on Charm City as the 2013 Super Bowl Champions.

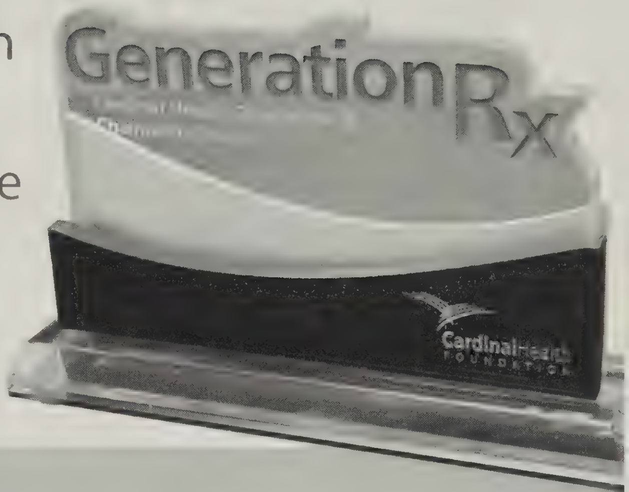
A portion of the diverse shipboard facilities encompassed a shopping mall, casino, numerous pools and saunas, gymnasium, art studio, spa, library, internet lounge, a performance theatre that presented musicals and exhibitions, meeting rooms, varied music combos, interesting contemporary discussions, and a hideaway that featured "egg" chairs. How spectacular is a liner that provides entertainment, diversion, and relaxation while traveling through the ocean at speeds up to 27 miles per hour! For this Chesapeake Bay sailor, floating across and witnessing the Caribbean Sea by daylight, twilight and in the moonlight were both exhilarating and serene.

The liner stopped at three ports-of-call: Old San Juan in Puerto Rico, St. Maarten, and St. Thomas. Silhouette wanderers mingled with those of other cruise ships and the local islanders, forming a vastly dissimilar yet interconnected assemblage. Each island offered many duty-free luxury items and liquor choices.

The fundamental purpose of the cruise, aside from the obvious allure of a Caribbean vacation, was the attainment of seven ACPE-approved continuing education credits. These were earned by each pharmacist's arising early every morning and meeting in the Sky Conference Center to interact with University of Maryland Eastern Shore Pharmacy Associate Professor Hoai-An Truong. Our attention was captured by the excellent, well-prepared and presented lectures of Dr. Truong. The inclusive topic of Medication Therapy Management permitted the attendees to peer through the window showcasing the future of the pharmacy profession. The related themes of public health initiatives, the balance of clinical and business concerns, immunization and vaccine opportunities, and long distance learning were taught, frequently utilizing the Jeopardy format.

This cruise was sponsored by the Maryland Pharmacists Association (MPhA) and was further promoted in the AZO Kappa Chapter. I don't recall where or when I have ever witnessed a more conclusive display of *peace, friendship and brotherly love* than throughout this exquisite ocean passage. I anxiously anticipate future nautical voyages with the MPhA membership, but for now, a recollection of sea breezes, international gourmet meals, superb and unique entertainment, erudite continuing education classes, a colossal and remarkable seafaring vessel, Caribbean Islands, and the companionship of old and new inspiring friends must suffice.

The Maryland Pharmacists Association and the Cardinal Health Foundation congratulate **Tony Tommasello** as the recipient of the *2012 Cardinal Health Generation R_X Champions Award!*



This award recognizes a pharmacist who has demonstrated excellence in community-based prescription drug abuse prevention. We celebrate Tony's outstanding efforts and commitment to raising awareness of the dangers of prescription drug abuse among the general public and among the pharmacy community.

For more information about the award,
visit **cardinalhealth.com/GenerationRx**

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cardinalhealth.com/GenerationRx

Making a Difference

by Wayne Dyke, RPh,
Chief Executive Officer, Caremerica

In February, I was given the chance to participate in the 13th Annual Pharmacy Legislative Day organized by the Maryland Pharmacy Coalition. This well-orchestrated event allowed for face-to-face grass roots discussion with the Delegates and Senators who vote on the various bills that can affect how we practice our profession. I was particularly struck by one of the talking point handouts on medication adherence and hope that it made as much of an impression on legislators as it did on me. The document made the following points:

1) Poor adherence to medications poses a severe threat to the health of Maryland citizens.

2) More than one in three medication related hospitalizations happen because those individuals did not take their medication as directed.

3) Almost 125,000 people in the U.S. die every year because they did not take their medicine as directed.

4) Pharmacists "can" play a vital role in increasing medication adherence. We are one of the most accessible health care providers and are able to reach a diverse patient population.

I would suggest the key phrase in statement #4 "can play" be replaced with "need to play" a bigger role in increasing medication adherence. Our care should include the following steps for increased compliance:

- Counseling all patients should be the norm, not just where it is required by legislation. For example, when filling an antibiotic prescription, the counseling should stress the need to take all doses until gone. On maintenance medications, patients should be asked if they want their prescription(s) filled automatically so there is no interruption in treating chronic conditions such as high blood pressure or diabetes.
- Identifying patients who might only want a few dollars' worth of their medications as potential compliance risks. Intervention for these patients could include finding prescription assistance programs or manufacturer discount coupons to insure continuity of treatment.
- Providing daily/weekly medication pill minders to let patients lay out their dosing regimens.
- Providing unit dose or blister packing for patients who might need assistance from a caregiver.
- Consulting with prescribers if your medication reviews identify at risk patients who are missing doses or refills.
- Consulting with physicians about your ability to dispense certain drugs as deep muscle long-acting injectables that can keep patients medicated for up to a month at a time.
- Identifying patients who may be "lost to care", meaning those persons who may have lost the financial ability to continue therapy, lost hope, or a host of other reasons that led to non-compliance with their medication therapies. This is especially prevalent with the psychiatric, HIV or Hepatitis C patients.
- Intervening with the physician to facilitate obtaining prior authorization as may be required by third party payors for needed medications.
- Being a voice in government, individually and through organizations such as the Maryland Pharmacists Association (MPhA), to support legislation initiatives or changes to existing regulations that result in improved continuity of pharmaceutical care. Public health can be protected with clear and effective legislation that does not produce road blocks to the patient's access to care and the pharmacist's ability to provide it.

As pharmacists, our goal should be to improve the health of each patient and intervene appropriately for that patient. Improving patient outcomes through compliance will reduce health care costs and hospital re-admissions. Taking the extra step to intervene will result in awareness and recognition of the pharmacist's role in the ever evolving health care system. The lesson here is to be involved for your patient and for your profession.

Above: *Andrew Haines, Shannon Osborne, Lisa Polinsky, Jen Thomas, Christopher Min, Brian Ricci, Nicole Culhane visit State Delegate Nancy Stockdale (center)*

Right: *MPhA Executive Director Howard Schiff with Wayne Dyke, RPh*

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1st Annual Maryland Pharmacy Welcome Night Reception

MPhA members, friends, and colleagues gathered to celebrate at the first-ever Maryland Pharmacy Welcome Night Reception at the JW Marriott Live in Los Angeles during the APhA Meeting and Exposition. The event was co-sponsored by **Notre Dame of Maryland University School of Pharmacy**, **University of Maryland Eastern Shore School of Pharmacy**, and the **University of Maryland School of Pharmacy.**

Photo 1 and 1a — Mark Walberg, moderator of the APhA General Sessions, and crew, stop by for an impromptu interview with MPhA President Brian Hose, Tony Tommasello and several others. Attendees had fun taking pictures with the "I Am Pharmacy" sign that the crew left behind.

Photo 2 — Nicholas Blanchard, Dean of the University of Maryland School of Pharmacy and Anne Lin, Dean of Notre Dame University of Maryland School of Pharmacy

Photo 3 — Student pharmacist members Jane Kim and Jamie Elsner

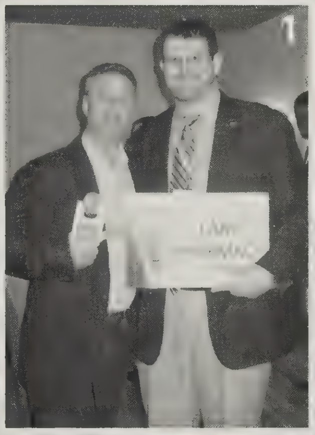
Photo 4 — Executive Director Howard Schiff, MPhA Past President Eileen Zuckerman

Photo 5 — Guests Nicole Lehman and Lindsay Yaworski with member Kristen Dominik

Photo 6 — Treasurer Matt Shimoda, Kelly Smith

*Photo 7 — **APhA Awards** — Tony Tommasello, RPh, PhD, FAPhA, accepts the Generation Rx Award of Excellence from Jenelle Sobotka, PharmD, FAPhA, APhA President*

*Photo 8 — **APhA Awards** — MPhA Past President Magaly Rodriguez de Bittner, PharmD, CDE, BCPS, FAPhA is the recipient of the* Daniel B. Smith Practice Excellence Award.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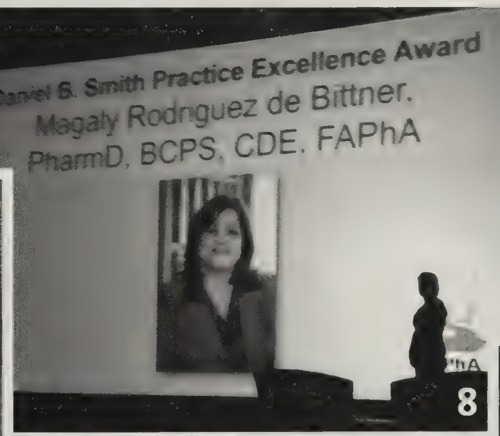
Daniel B. Smith Practice Excellence Award
Magaly Rodriguez de Bittner,
PharmD, BCPS, CDE, FAPhA
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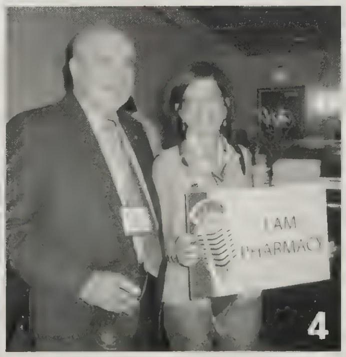

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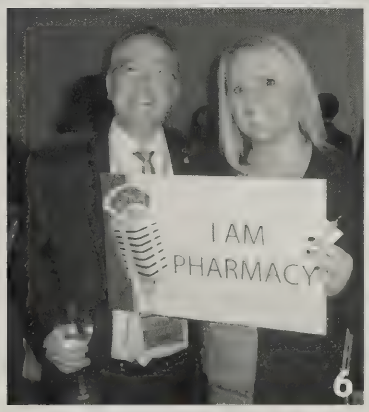

6

Parents, Alzheimer's & Money

Easing into a Difficult Conversation

This series, Financial Forum, is presented by Pro Advantage Services, Inc., a subsidiary of Pharmacists Mutual Insurance Company, and your State Pharmacy Association through Pharmacy Marketing Group, Inc., a company dedicated to providing quality products and services to the pharmacy community.

Every eighth American aged 65 and older has Alzheimer's disease, and 43% of Americans aged 85 and older have it, according to the Alzheimer's Association. Consider those percentages in light of the Social Security Administration's estimate that about 25% of today's 65-year-olds will live past age 90. These shocking statistics have serious implications for family wealth.[1,2]

YOUR CHOICES. What are your options when it comes to helping a parent out with money management? Informally, you can "lend a helping hand" and check in with mom and dad to make sure that bills and premiums are paid, and deadlines are met. But if you elect to formally take the financial reins, you are looking at a two-phase process:

YOU CAN GET A POWER OF ATTORNEY AND ASSUME SOME OF THE FINANCIAL RESPONSIBILITIES

A power of attorney is a detailed and strictly constructed legal document that gives you explicitly stated measures of financial authority. If you try to handle financial matters for your parent(s) without a valid power of attorney, the financial institution involved may reject your efforts.[3]

A *durable* power of attorney lets you handle the financial matters of another person immediately. The alternative — a *springing* power of attorney — only takes effect when a medical diagnosis confirms that person's mental incompetence. Copies of the power of attorney should be sent to any financial institution at which your parents have accounts or policies. It may be wise to get a durable power of attorney *before* your parent is unable to make financial decisions; many investment firms require the original account owner to sign a form to allow another party access to an account owner's invested assets.[4]

You are going to have to hunt for information, such as ...

- Where mom or dad's income comes from (SSI, pensions, investments, etc.)
- Where the wills, deeds and trust documents are located.

- Who the designated beneficiaries are on insurance policies, IRAs, etc.
- Who the members of mom or dad's financial team or circle are. You need to talk with them; they need to talk with you.
- The crucial numbers: checking and savings accounts, investment accounts, insurance policies, PIN numbers and of course Social Security numbers.
- It will also help to learn about their medical history and prescriptions.

If the disease progresses to the point where your mom or dad can't make competent financial decisions, then you are looking at a conservatorship. In that case ...

YOU CAN ACT TO BECOME YOUR MOM OR DAD'S CONSERVATOR

This means going to probate court. You or your parent can initiate a request for conservatorship with a family law attorney; if the need is more immediate, you or your family's attorney may petition the court. In either case, you will need to show documentation that your parent is no longer financially competent. You must provide medical documentation of his or her dementia to the court as well.

The court will interview the involved parties, look at the documentation and perform a background check on the proposed conservator. This is all pursuant to a hearing at which the court presents its decision. If conservatorship is granted, the conservator assumes control of some or all of the protected party's income and assets.[5]

How do conservatorships differ from guardianships? A guardianship gives a guardian control over many aspects of a protected person's life. A conservatorship limits control to the management of the protected person's assets and financial affairs.[5]

What if I don't want to assume this kind of responsibility? Some wealth management firms offer daily money management as an option in a "family office" suite of services. The firms make home visits to help with bill paying, filing medical claims and other recurring tasks; carefully scrutinize anyone offering this service. (Visit aadmm.com for the American Association of Daily Money Managers.)[6]

The other choice is to give a relative, a financial services professional, or a family lawyer durable or springing power of attorney or limited or full conservatorship. Such a decision must not be made lightly.

Keep your parents away from unprincipled people. These steps may prove essential, yet they will not shield your family from scam artists. Be on the lookout for new friends and acquaintances. If your instincts tell you something is wrong, investigate.

Provided by courtesy of Pat Reding, CFP™ of Pro Advantage Services Inc., in Algona, Iowa. For more information, please call Pat Reding at 1-800-288-6669.

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CITATIONS

1. www.alz.org/downloads/facts_figures_2011.pdf [2011]
2. money.usnews.com/money/blogs/planning-to-retire/2010/07/22/predicting-your-own-life-expectancy [7/22/12]
3. www.law-business.com/powers-of-attorney [4/27/12]
4. http://www.kiplinger.com/magazine/archives/managing-your-parents-money.html [4/27/12]
5. dhs.sd.gov/gdn/guardianshipfaqs.aspx [6/2/12]
6. www.smartmoney.com/retirement/planning/talking-to-mom-about-alzheimers-and-her-money-1335192298522/ [5/7/12]

Welcome to our newest members!

Jin Ahn
Maureen Ames
Jennifer Bailey
Jayme Dinsmore
Adjarho Egbegbadia
Joseph Fine
Joseph Gomes
Helen Granado-Boesel
Isiah Harper Jr
Jungeun Kim
Timothy Lubin
John Motsko
Ivy Muteithi
John Oliver
Naana Osei-Boateng
Susan Pajak
Neha Pandit
Margaret Robertson
Nonye Uddoh
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Homeira Zadeh

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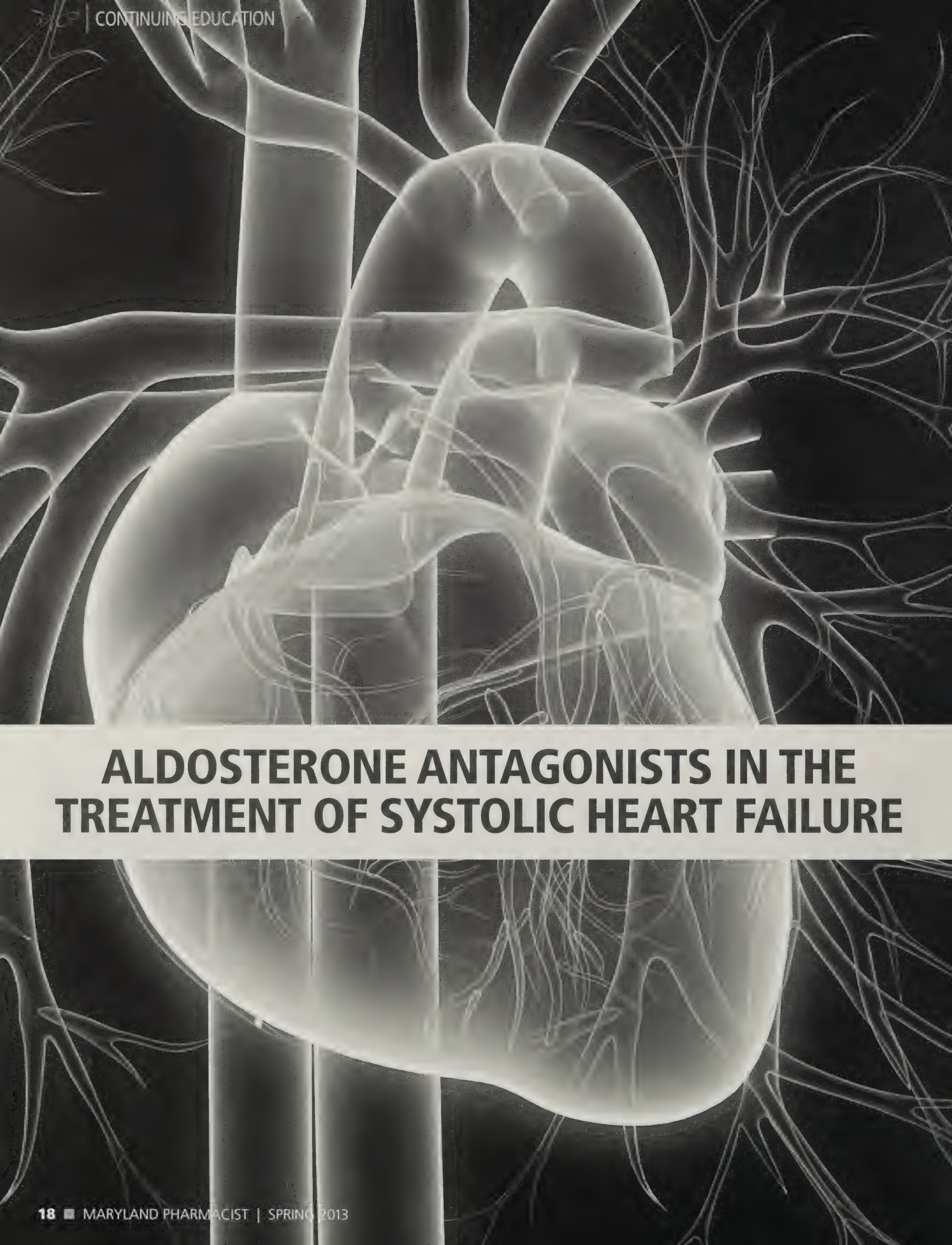

ALDOSTERONE ANTAGONISTS IN THE TREATMENT OF SYSTOLIC HEART FAILURE

After completing this reading, addressing the patient case and completing the assessment questions, the learner will be able to:

1. Describe the evidence supporting the use of aldosterone antagonists in patients with heart failure.
2. List the dosing of spironolactone and eplerenone in the management of heart failure, contraindications to therapy, and clinically relevant monitoring parameters.
3. Given an actual or simulated patient with heart failure, evaluate the patient as a candidate for aldosterone antagonist therapy, select a specific agent, and list three important patient counseling points.

PATIENT CASE

A 60-year-old male, HP, who was diagnosed with heart failure (HF) one year ago presents to your pharmacy for a refill of his medications. You are reviewing his medications with him at pick-up and question how he has been feeling. He reports that he has been experiencing dyspnea (difficulty breathing) with maximal exertion. HP explains that he tends to get short of breath when he walks more than 3-4 blocks but he does not have any trouble breathing when he performs his normal activities of daily living. He reports that his symptoms have been stable for the past six months. He denies lower extremity edema and other HF symptoms. As far as you can tell from his pharmacy records, HP has no other significant medical history. He reports adherence to a low sodium diet and medications, which you confirm after review of his refill history. HP states that his physician discussed adding an aldosterone antagonist to his regimen; HP requested that he speak with you first before determining if he should start another medication. In the past, he has been very concerned about possible medication side effects.

Pertinent laboratory values (drawn one week ago):

	Normal range	HP's result
Sodium	136-144 mEq/L	140 mEq/L
Potassium	3.7-5.2 mEq/L	4.0 mEq/L
BUN	7-20 mg/dL	15 mg/dL
SCr	0.8-1.4 mg/dL	1.1 mg/dL
Glucose	64-128 mg/dL	100 mg/dL

Weight: 84 kg (stable for 4–5 months)
Height: 6'1"
Blood pressure: 118/78 mmHg
HR: 68 beats per minute
Current medication list:

1) Metoprolol succinate 200 mg by mouth daily
2) Lisinopril 20 mg by mouth daily
3) Furosemide 80 mg by mouth twice daily
4) Potassium Chloride 20 mEq by mouth daily
5) Multivitamin by mouth daily

Sarah K. Brant, BS and Kristin Watson, PharmD, BCPS

Consider these questions while reviewing the following article:

1) What are the potential benefits of adding an aldosterone antagonist to HP's medication regimen?
2) What factors must be considered before initiation of an aldosterone antagonist for a patient with HF?
3) What are the differences between the aldosterone antagonists (eplerenone and spironolactone)?
4) What are the dosing recommendations for aldosterone antagonists for the management of HF (strength, frequency, duration of therapy)?
5) If an aldosterone antagonist were added to HP's regimen, what monitoring plan would you recommend?
6) What counseling points should be made to HP?

INTRODUCTION

Heart failure is an increasingly prevalent disease affecting close to 6 million Americans each year. In 2007, there were 990,000 hospital admissions and 56,595 deaths attributed to HF despite advancements in treatment.[1] Heart failure is a progressive disease and symptoms can range from mild to severe with patients experiencing shortness of breath at rest. The New York Heart Association (NYHA) Functional Classification system, refer to the Table, is used to classify a patient's limitation in physical activity due to shortness of breath.[2] It is important when determining the patient's NYHA classification that the provider consider the patient's normal activity level versus what the provider considers normal activity in their daily life. For example, as with HP, he is able to walk 3–4 blocks prior to developing shortness of breath (ordinary activity for him) and does not have symptoms performing his activities of daily living. Clinicians often consider shortness of breath (SOB) with activities of daily living (e.g. showering and dressing) as NYHA Class III symptoms. Therefore, HP can be considered to have NHYA Class II symptoms. This classification system is used to monitor changes in symptoms over time and is routinely used in clinical trials when evaluating treatment options for those with HF.

Table. New York Heart Association Classification System[2]

New York Heart Association Class	Symptoms
I	No limitations with ordinary physical activity
II	Mild symptoms. Slight limitation of physical activity. No symptoms at rest but ordinary activity leads to symptoms (e.g. shortness of breath, fatigue).
III	Moderate symptoms. Marked limitation of physical activity. No symptoms at rest but less than ordinary activity leads to symptoms (e.g. shortness of breath, fatigue).
IV	Severe symptoms. Symptoms with any physical activity and at rest.

THE ROLE OF ALDOSTERONE ANTAGONISTS

The standard of care for the treatment of HF consists of an angiotensin converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB), and a beta-blocker; diuretic therapy may be added based on the presence of symptoms. Treating patients with the standard of care alone, however, is often insufficient to prevent morbidity (hospitalization and worsening quality of life) and mortality. Aldosterone antagonists have become more popular recently for the treatment of HF as their use has been shown to be beneficial when used in addition to standard therapies.[3]

Aldosterone is a hormone released from the adrenal glands which acts on the kidneys to retain sodium and fluid in exchange for potassium. Aldosterone plays an important role in the development and progression of cardiovascular diseases due to these effects, as well as causing ventricular remodeling and vascular damage.[4] The use of aldosterone antagonists including spironolactone (Aldactone®) and eplerenone (Inspra™), has been investigated in the treatment of systolic HF. Systolic HF includes patients with a left ventricular ejection fraction (LVEF) < 40% with symptoms including shortness of breath, lower extremity edema and orthopnea. Orthopnea is defined as shortness of breath when lying flat; asking patients about the numbers of pillows used to sleep at night and if they are able to sleep flat without experiencing SOB assesses this symptom.

CLINICAL EVIDENCE

Three landmark, randomized, controlled trials have been conducted in the past 15 years which have lent strong support for the routine use of aldosterone antagonists in patients with HF.

RALES: In the Randomized Aldactone Evaluation Study (RALES) trial, treatment with spironolactone compared to placebo decreased the risk of death from HF (15% vs. 22%, relative risk (RR) 0.64; 95% confidence interval (CI) 0.51-0.80, P<0.001) and the risk of hospitalization in those with symptomatic HF (32% vs. 40%, RR 0.70; 95% CI 0.59-0.82, P<0.001). In order to qualify for study inclusion, participants had to be treated with an ACE inhibitor and a loop diuretic, and have a LVEF of ≤ 35% for the 6 months prior to the trial and NYHA Class III-IV symptoms.4

EPHESUS: In the Eplerenone Post-Acute Myocardial Infarction Heart Failure Efficacy and Survival Study (EPHESUS) trial, the use of eplerenone was proven to reduce the risk of mortality and hospitalization from cardiovascular causes in patients with left ventricular dysfunction following a myocardial infarction (MI) compared to placebo (27% vs. 30%, RR 0.87; 95% CI 0.79-0.95, P=0.002). The study population included patients post-MI with a LVEF of ≤40% and 1) had signs of HF including rales, pulmonary congestion, or additional heart sounds or 2) had been diagnosed with diabetes.[5]

EMPHASIS-HF: The Eplerenone in Mild Patients Hospitalization and Survival Study in Heart Failure (EMPHASIS-HF) was conducted to determine if there is a role for prescribing aldosterone antagonists in addition to standard therapy for those with mild HF (NYHA Class II symptoms). In this trial, eplerenone was shown to reduce the risk of death from cardiovascular causes (10.8% vs., 13.5%, hazard ratio (HR) 0.76; 95% CI 0.61-0.94, P=0.01) and to decrease the risk of hospitalization due to HF (12% vs., 18.4%, HR 0.58; 95% CI 0.47-0.70, P <0.001) in those with mild HF when compared with placebo.[6]

The results of these three studies have given credence to the inclusion of an aldosterone antagonist in addition to the standard therapies for HF, not only in the most severe patients but also in milder cases. Despite the benefits of these agents reported in clinical trials, use of aldosterone antagonists in those with HF has been lower than expected. This may be due in part to a lack of data demonstrating effectiveness and safety in the "real-world." Additionally, patients in clinical trials tend to have fewer co-morbidities, are more adherent to medications, and are monitored more closely than those encountered in practice.

Recently, a trial utilizing Medicare claims was conducted to determine the safety and efficacy of these agents in clinical practice.[7] Hernandez and colleagues evaluated Medicare claims for those 65 years or older hospitalized for HF or who developed HF symptoms during their admission and were eligible for aldosterone therapy. Those considered eligible for therapy had a LVEF ≤ 35% with no contraindications to therapy, including an elevated serum creatinine (> 2.5 mg/dL for men and > 2 mg/dL for women). Upon discharge from the hospital, an aldosterone antagonist was initiated for 1070 (18.2%) of the 5887 patients meeting inclusion criteria. There was no difference in mortality or cardiovascular readmission at three years between those who did or did not receive an aldosterone antagonist. However, the rate of HF readmission was significantly reduced in those receiving therapy (HR 0.87; 95% CI 0.77-0.98, P = 0.02). The rate of hospitalization for hyperkalemia was significantly increased among those receiving an aldosterone antagonist; the risk was highest within 30 days of discharge.[7]

THE RISK OF HYPERKALEMIA

As noted in the Hernandez and colleagues study, along with the benefits of aldosterone antagonist therapy in those with HF, practitioners must be aware of the risk of hyperkalemia due to the potassium-sparing effect of these agents. This is especially concerning considering that these agents are often used in conjunction with ACE inhibitors or ARBs, which are also known to increase potassium levels. In the RALES trial, serious hyperkalemia, defined as a serum potassium concentration > 6.0 mmol/L, occurred in 10 patients (1%) in the placebo group and 14 patients (2%) in the spironolactone group (P=0.42).[4] In contrast, in the EPHESUS trial, serious hyperkalemia was more commonly observed in the eplerenone group vs. placebo (5.5% vs. 3.9%, P=0.002). Twelve patients in the eplerenone group were hospitalized for hyperkalemia compared to 3 in the placebo group, and one patient in the placebo group died secondary to hyperkalemia.[5] In the EMPHASIS-HF trial, 33 subjects (2.5%) in the eplerenone group had a serum potassium > 6 mmol/L compared to 25 patients (1.9%) in the placebo group, (P=0.29). Four patients in the eplerenone group (0.3%) and 3 from the placebo group (0.2%) were hospitalized for hyperkalemia (HR 1.15, 95% CI 0.25-5.31, P=0.85).[6] In all three trials, patients who had severe kidney dysfunction or a baseline serum potassium of greater than 5.0 mmol/L were excluded from the trial to minimize the potential for complications of severe hyperkalemia.

There have been several studies conducted since the RALES study (1999), investigating whether hospitalizations and deaths due to hyperkalemia increased after the release of the RALES data. One notable study conducted in Ontario, Canada by Juurlink and colleagues found that an increase in spironolactone use post RALES also increased the rate of hyperkalemia-related hospitalizations. The rate of hospitalization due to hyperkalemia in patients who were recently hospitalized for HF and who were receiving ACE inhibitors was 2.4 patients per thousand in 1994 and 11 patients per thousand in 2001 (P<0.001) following the increased use of spironolactone. Additionally, mortality due to hyperkalemia rose from 0.3 patients per thousand to 2 patients per thousand (P<0.001).[8]

> "There is a risk of potentially life-threatening hyperkalemia with aldosterone antagonists, making monitoring renal function and potassium levels a vital aspect of therapy.[8]"

As a result of these studies and the population excluded from the clinical trials discussed, there is specific product labeling as well as recommendations from the American College of Cardiology Foundation/American Heart Association (ACCF/AHA) for determining which patients should receive an aldosterone antagonist based on their baseline potassium and serum creatinine levels. Therapy should not be initiated if serum potassium is ≥ 5.0 mEq/L or if serum creatinine is ≥ 2.5 mg/dL in men or ≥ 2.0 mg/dL in women.[3]

OTHER COMMON SIDE EFFECTS

In the RALES, EPHESUS and EMPHASIS-HF trials the rate of increased serum creatinine was reported more commonly in those receiving an aldosterone antagonist; however, these changes were not clinically significant.[4-6] In the RALES trial the rate of gynecomastia (breast tenderness/enlargement in males) was reported more commonly in the spironolactone group (10% vs. 1%, $p < 0.001$).[4] The rate of gynecomastia is not increased in those who received eplerenone. This is because eplerenone has greater selectivity for the mineralocorticoid receptor than spironolactone; spironolactone also binds to androgen and progesterone receptors.[5-6]

CHOICE OF THERAPY

Spironolactone is currently approved by the Food and Drug Administration for use in severe HF (NYHA Class III or IV) and eplerenone for use in HF post-MI.[9-10] While these two agents have different indications for use in HF, spironolactone and eplerenone are used interchangeably in practice. Spironolactone is often preferred due to the considerable cost difference (due to the generic availability of spironolactone), but eplerenone should be used when a patient develops gynecomastia while taking spironolactone.[3-5]

DOSING

Spironolactone:

- Initial dose: 12.5-25 mg once daily. May increase to 50 mg/day if initial dose is tolerated. If initial dose is not tolerated, may decrease to 25 mg every other day. If creatinine clearance (CrCl) is <50 ml/min, initial dose should be 12.5 mg.[9]

Eplerenone:

- Initial dose: 25 mg once daily. May increase to maximum of 50 mg/day within 4 weeks of start of therapy. If potassium levels increase above 5.5 mEq/L during therapy, reduce the dose or increase the dosing interval. If CrCl is <50 ml/min, initial dose should be 25 mg.[10]

CONTRAINDICATIONS FOR USE

Spironolactone: Spironolactone is primarily excreted in the urine; use is contraindicated in patients with renal impairment (CrCl <30 ml/min) due to an increased risk of hyperkalemia. Use is also contraindicated in patients with a serum potassium of >5.0 mEq/L upon initiation.[9]

Eplerenone: Serum potassium >5.5 mEq/L at initiation or CrCl ≤ 30 mL/min due to increased risk of hyperkalemia. Use is also contraindicated with concomitant strong cytochrome P450 3A4 inhibitors such as ketoconazole, itraconazole, nefazodone, troleandomycin, clarithromycin, ritonavir, and nelfinavir as eplerenone is primarily metabolized by CYP3A4.[10]

MONITORING

There is a risk of potentially life-threatening hyperkalemia with aldosterone antagonists, making monitoring renal function and potassium levels a vital aspect of therapy.[8] Renal function and potassium levels should be checked 3 days after starting an aldosterone antagonist, and then again 1 week after the start of therapy. These levels should continue to be monitored monthly for the first 3 months, and then every 3 months. If an ACE inhibitor or ARB is increased in dose or added to a patient's regimen, these levels should be more closely monitored.[3]

If significant hyperkalemia occurs (>5.5 mEq/L), there should be either a dose-reduction or discontinuation of the aldosterone antagonist. If renal function declines, discontinuation of the aldosterone antagonist should be considered.[3]

IMPORTANT COUNSELING POINTS

1) Sodium Substitution. All patients with HF should limit their sodium intake to less than 2000 mg/day and consider the use of potassium salts as replacements to flavor their food. However, some salt substitutes are high in potassium. Counsel patients about using these salt substitutes in moderation as well as high-potassium-containing foods due to the potassium-sparing effects of aldosterone antagonists. Examples of salt substitutes include: Mrs. Dash® (10 mg or 0.25 mEq K+ per ¼ tsp), Morton's Salt Substitute® (610 or 15.6 mEq mg K+ per ¼ tsp.), NoSalt® (650 mg or 16.6 mEq K+ per ¼ tsp.), and LoSalt® (825 mg or 21.2 mEq K+ per ¼ tsp). Advise your patients to check the labeling of their salt substitutes before use.

2) Potassium Supplementation. Generally the potassium supplement should be discontinued when an aldosterone antagonist is initiated due to the potential for potassium accumulation.[3] If a patient is still receiving a potassium supplement in spite of starting an aldosterone agent, advise your patient to talk to their doctor and consider contacting the prescriber to ensure supplementation is still warranted. If a patient requires an unusually high amount of potassium supplementation prior to initiating an aldosterone antagonist, a dose reduction of the potassium supplement may be warranted rather than an abrupt discontinuation.

3) Counsel male patients about the potential for gynecomastia with spironolactone use and the need to alert their prescriber if this occurs. This adverse effect generally dissipates with discontinuation of the offending agent.[3]

4) Many patients will be on numerous medications for their HF as well as for other disease states, and may be hesitant to increase their pill burden. Explain to patients the benefits of using an aldosterone antagonist in addition to their other medications — decreased risk of hospitalization and death.[4-6]

CASE DISCUSSION

As discussed in the case scenario, HP has Class II NYHA symptoms. Based on the results of the EMPHASIS-HF trial, he would qualify for use of an aldosterone antagonist; addition of this therapy can reduce the risk of death and HF hospitalizations. It is imperative to assess a patient's renal function and potassium prior to initiation. HP meets criteria for initiation since his serum creatinine is < 2.5 mg/dL and his potassium is < 5 mEq/L. His creatinine clearance is ≥ 50 ml/min, therefore, dose adjustments are not necessary. Spironolactone or eplerenone can be initiated at 25 mg daily for this patient. The patient's insurance status and co-pay should be assessed to determine which agent is more affordable. To minimize the risk of hyperkalemia, HP's potassium supplementation should be discontinued and he should be counseled on the importance of monitoring his potassium intake. Additionally, once therapy is initiated he should have his serum creatinine and potassium monitored within three days. HP should also be counseled on the importance of adherence to laboratory testing once an aldosterone antagonist is initiated. If spironolactone is initiated, HP should be counseled on the potential development of gynecomastia, and instructed to report this symptom if it develops.

CONCLUSIONS

In conclusion, there is strong support for the use of aldosterone antagonists in the treatment of HF, across all ranges of severity (NYHA Classes II-IV). In several robust clinical trials, these drugs have been shown to improve mortality and prevent hospitalization in patients with HF. However, the benefits of therapy must be weighed against the risk of hyperkalemia. Counsel patients who are initiated on an aldosterone antagonist about the risk of hyperkalemia, the need for routine blood work to monitor potassium levels and how they can decrease this risk by monitoring their dietary potassium intake.

REFERENCES

1 Roger VL, Go AS, Lloyd-Jones DM, et al. Heart disease and stroke statistics – 2011 update: A report from the American Heart Association. Circulation 2011;123:e18-e209.

2 The Criteria Committee of the New York Heart Association. Nomenclature and Criteria for Diagnosis of Diseases of the Heart and Great Vessels. 9th ed. Boston, Mass: Little, Brown & Co; 1994:253-256.

3 The American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. 2009 Focused update incorporated into the ACC/AHA 2005 guidelines for the diagnosis and management of heart failure in adults. Am J Cardiol 2009;53:e1-90.

4 Pitt B, Zannad F, Remme WJ, et al. The effect of spironolactone on morbidity and mortality in patients with severe heart failure. N Engl J Med 1999;341:709-17.

5 Pitt B, Remme W, Zannad F, et al. Eplerenone, a selective aldosterone blocker, in patients with left ventricular dysfunction after myocardial infarction. N Engl J Med 2003;348:1309-21.

6 Zannad F, McMurrary JJV, Krum H, et al. Eplerenone in patients with systolic heart failure and mild symptoms. N Engl J Med 2011;364:11-21.

7 Hernandez AF, Mi X, Hammill BG et al. Associations between aldosterone antagonist therapy and risk of mortality and readmission among patients with heart failure and reduced ejection fraction. JAMA 2012;308:2097-2107.

8 Juurlink DN, Mamdani MM, Lee DS, et al. Rates of hyperkalemia after publication of the Randomized Aldactone Evaluation Study. N Engl J Med 2004;351:543-51.

9 Aldactone® [Full Prescribing Information]. New York, NY: Pfizer Pharmaceuticals, Inc.; August 2011.

10 InspraTM [Full Prescribing Information]. New York, NY: Pfizer Pharmaceuticals, Inc.; April 2008.

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Was the information relevant to your practice?	No	1	2	3	4	5	Yes

How long did it take you to read the article and complete the exam? ________ (minutes)

1 **What role does aldosterone play in cardiovascular disease?**
a. Vascular damage
b. Ventricular remodeling
c. Sodium and fluid retention
d. All of the above

2 **Which of the following trials studied the use of eplerenone in patients with mild (New York Heart Association [NYHA] Class II) heart failure (HF)?**
a. RALES
b. EPHESUS
c. EMPHASIS-HF
d. None of the above

3 **What was a major difference between the study participants in the RALES trial compared to the EPHESUS trial?**
a. Age
b. Ethnicity
c. Presence of an acute MI
d. NYHA Functional Class

4 **Which of the following is a major adverse effect that should be routinely monitored with the use of aldosterone antagonists?**
a. Anemia
b. Hyperkalemia
c. Hypernatremia
d. Increased liver function tests

5 **According to the American College of Cardiology/American Heart Association Guidelines, which of the following are contraindications for initiation of aldosterone antagonists in HF?**
a. Hypertension
b. Serum Creatinine > 2.5 mg/dL in men
c. Serum potassium >5.0 mEq/L at initiation of therapy
d. B and C

6 **What is the recommended starting dose of spironolactone in a patient with NYHA Class IV HF with normal renal function?**
a. 12.5 mg daily
b. 25 mg daily
c. 50 mg daily
d. 75 mg daily

7 **What is the recommended maximum dose of eplerenone in HF patients post-myocardial infarction?**
a. 12.5 mg daily
b. 25 mg daily
c. 50 mg daily
d. 75 mg daily

8 **The starting dose of an aldosterone antagonist in those with HF should be reduced for a creatinine clearance less than which of the following:**
a. 75 ml/min
b. 50 ml/min
c. 30 ml/min
d. 15 m/min

9 **Which of the following medications should be avoided with eplerenone?**
a. Trazodone
b. Ketoconazole
c. Azithromycin
d. Fosamprenavir

10 **Which of the following are important counseling points when dispensing an aldosterone antagonist?**
a. Limit foods that are high in potassium.
b. Avoid salt substitutes high in potassium.
c. Frequent monitoring of renal function and potassium levels.
d. All of the above.

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As this is written, there are 10 days left in the 2013 Legislative session and several initiatives important for pharmacists in Maryland are taking place.

HB 179/SB 401 are bills that will allow trained pharmacists to administer any vaccine approved by the Centers for Disease Control to individuals 11 to 18 years of age by a prescription and to adults over 18 by protocol. All vaccines must be reported to the ImmuNet (Maryland Immunization Registry). Documentation of at least one effort to notify the prescriber or primary care provider must be made. The Secretary of the Department of Health and Mental Hygiene will conduct a study on the feasibility of requiring all providers to report vaccinations to the ImmuNet. Both of these bills have passed their respective Houses.

HB 591/SB 595 are designed to limit drug sales of pharmacies to wholesalers. Wholesale distribution can only be made to a wholesaler if the distribution is less than 5% of the pharmacy's annual sales, certain records are kept and the Board of Pharmacy notified. This is an attempt to avoid sales to the "gray market" where some shortages and counterfeits have occurred. Both of these bills have passed their respective Houses.

Drugs and devices are part of the Maryland Code that require regulation by the Board of Pharmacy. It was brought to the Board's attention that some companies distribute devices without drugs. Their desire was that they be free of the necessity of having a pharmacist on duty at all times. The Board agreed that they should have such a waiver as long as the devices were dispensed without drugs. This formed the background for **HB 868/SB 761**. These bills allowing the waiver were passed. **SB 139/HB 1237** repeals an exemption from inspections that dispensing Workers Compensation providers have had in the Maryland Code for a long time. Both bills passed their respective Houses.

SB928/HB736 allowed the Board of Pharmacy and the UM School of Pharmacy or all the Schools of Pharmacy in Maryland to define so called "specialty drugs." Pharmacy was united in support of this definition but it seemed the Legislature, unfamiliar with the process and hearing opposition from the PBMs, particularly about costs, was hesitant. The bills are still in committee.

HB 1101, which allows investigational use of marijuana for medical purposes, received a favorable House committee vote and is under consideration on the House floor. The bill establishes the Medical Marijuana Commission(including a pharmacist) to develop requests for applications for academic medical centers to operate programs in the State, approve or deny initial and renewal program applications, and monitor and oversee programs approved for operation. The bill has passed the House.

Receiving unfavorable reports from committees were **HB 908**, a MAC pricing disclosure bill, **HB 783**, a bill that would have allowed dentist to avoid dispensing permits under certain circumstances, and **HB 1032**, an annual dispensing prescriber bill (cost was prohibitive).

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MARYLAND PHARMACISTS ASSOCIATION JOURNAL | SUMMER 2013

> **My goal as your new president is to increase membership by a minimum of 10% this year. To achieve this aggressive milestone I need your help.**

Dear Members,

I would like to take this opportunity to thank you for your membership in the Maryland Pharmacists Association. My goal as your new president is to increase membership by a minimum of 10% this year. To achieve this aggressive milestone I need your help.

To our 2013 school of pharmacy graduates and new practitioners, congratulations and welcome to the profession. I wish you much happiness and success in your pharmacy careers. You have made a wise decision and have selected an amazing profession full of endless possibilities. I would also like to offer congratulations to all pharmacy residents on the completion of their programs; you should be very proud of your accomplishments.

I joined MPhA as a new practitioner and as a result developed meaningful relationships and have found numerous mentors, all of whom have helped in my development as a pharmacist. I encourage each of you to become active in MPhA's New Practitioner Network. The NPN provides you a venue as new practitioners to network as well as exchange ideas and information to further your professional development. To learn more and register for upcoming NPN events please visit the MPhA website at **marylandpharmacist.org**.

To our pharmacy technician members; we want to hear from you! There are only 22 MPhA technician members. If you are a technician and would like to become more involved in committee work or have innovative ideas on attractive programs for technicians please email me at mphapresident@gmail.com.

To our current members, I ask that each of you identify potential pharmacist and technician members and discuss the value of membership with them. Please consider inviting them to our annual Medication Therapy Management Summit scheduled for the weekend of September 28. The Summit is a great way for current members and non members to become better acquainted with the Association and the Board of Trustees. Pharmacists and technicians interested in joining the association will have a number of current members to speak with about membership.

Thank you again for selecting me as your 2013/2014 MPhA President. I am honored. I wish you and your families a safe and happy summer and I look forward to seeing many of you in September.

Sincerely,

Christine Lee-Wilson

Christine Lee-Wilson, PharmD
President

Contents

MARYLAND PHARMACIST SUMMER 2013

FEATURES

4 Graduating Classes of 2013

6 Establishing a Legacy — The University of Maryland Eastern Shore School of Pharmacy

9 Promoting Provider Status for Pharmacists

12 First Annual Baltimore *Script Your Future* Medication Adherence Experience

14 131st Annual Convention

DEPARTMENTS

2 **President's Pad**
18 **Continuing Education**
23 **CE Quiz**
25 **Member Mentions**
27 **Executive Director's Message**

ADVERTISERS INDEX

10 **McKesson**
11 **Buy-Sell-A-Pharmacy**
24 **Pharmacists Mutual Insurance Company**
26 **Carefirst**
28 **Caremerica**

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Attention New Graduates

To receive your complimentary MPhA benefits through December 2013 (*Maryland Pharmacists* quarterly journal, newsletter, *Monday Message*, New Practitioner Network activity updates, etc.), be sure to create/update your personal profile page that can be found at marylandpharmacist.org

ESTABLISHING A LEGACY

The University of Maryland Eastern Shore School of Pharmacy

On the very foggy morning of August 9, 2010, I packed everything I owned into my car, and I was set for my move to pharmacy school. I left Germantown, MD, for a tiring drive at 2 a.m., but by the time I got to the campus of the University of Maryland Eastern Shore (UMES), I was awakened by the notion that I was about to start my pharmacy career. Upon arrival, I went to the Student Services Center to register for a week-long orientation of UMES – School of Pharmacy (SOP). It has been an exciting three years, and UMES SOP graduated its inaugural class on May 17, 2013. I am privileged to be part of the inaugural class of 2013 at UMES, the only 3-year pharmacy program in Maryland.

— Ferdinand

Growing up in a rural community in Western Maryland, I realized early on the difference that having competent and caring pharmacists could make in a predominately underserved area. I knew that I wanted to continue that service with my career, and attending the UMES School of Pharmacy, a smaller school in an underserved area, has prepared me to be able to accomplish that goal. As a member of the inaugural graduating class of UMES SOP, I hope to help establish a legacy of excellent pharmacists who make lasting impression on the lives of their patients.

— Jared

Ferdinand-Patrick Ngonga, PharmD Candidate 2013, University of Maryland Eastern Shore School of Pharmacy

Jared Steward, PharmD Candidate 2013, University of Maryland Eastern Shore School of Pharmacy

Through dedication, leadership, and hard work of many individuals, the UMES SOP has received full-accreditation from the Accreditation Council for Pharmacy Education (ACPE) on June 26, 2013. From a historical perspective, the UMES SOP was approved by the Board of Regents of the University System of Maryland in November 2007, Maryland Higher Education Commission in January 2008, and by the Middle States Commission on Higher Education in June 2009. Dr. Nicholas R. Blanchard was selected as the Founding Dean of the School of Pharmacy to start a historic journey in July 2008. The dean was later joined by Dr. James Junker, Dr. Miriam Purnell, and several other faculty in spring 2009. This group submitted the application package to the ACPE for the establishment of the School. After an ACPE site visit in fall 2009, pre-candidate accreditation status was granted in January 2010. ACPE conducted another site visit and granted UMES SOP Candidate accreditation status in June 2011.

The mission and vision of UMES School of Pharmacy is dedicated to developing exemplary pharmacy professionals and scholars who are committed to patient-centered care, lifelong learning, discovery, and service for diverse communities of the Delmarva Peninsula, the State of Maryland, and around the world. This commitment is made possible by the resources available to students, staff and faculty members at the school of pharmacy. All students have access to electronic references and textbooks, e.g. the APhA Pharm Library, and drug information databases through the UMES library portal. There is also an attendance policy and professional dress code for students to develop a professional culture and mindset as healthcare professionals since the first day of pharmacy school.

The administration and faculty of UMES - SOP has greatly expanded. The two departments are made up of highly qualified faculty members hired from across the country. The Department of Pharmaceutical Sciences is led by Dr. James Junker and comprised of renowned professors like Dr. Victor Hsia, who is a recipient of a R01 grant from NIH for his research in virology. The Department of Pharmacy Practice and Administration is led by Dr. Cynthia Boyle and includes faculty members with a variety of board certification and specialties and leadership at national and state organizations.

The Office of Experiential Education led by Drs. Mark Freebery and Larry Hogue and assisted by Ms. Brenda Granger worked hard to provide the inaugural class of 2013 rotation opportunities with qualified preceptors at multiple sites throughout Maryland and nationwide. The Office of Professional Affairs led by Dr. Hoai-An Truong and assisted by Ms. Annette Rogers has provided professional development opportunities to facilitate students to be self-directed, lifelong learners. The monthly Professional Development Seminars included visits and presentations of state and national organization speakers, including those from the CMS, FDA, APhA, ASCP, Haiti Medical Missions, Outcomes MTM, etc. In collaboration with the Office of Student Affairs led by Dr. Miriam Purnell and assisted by Ms. Sharon Neal-Horsey, the offices organized Career Fairs, CV Workshop, Mock Interviews, and Community Service opportunities. Collectively, students from all three classes performed almost 6000 hours of community service hours over three years. Students and faculty members are engaged in activities, including Habitat for Humanity and secondary schools, affecting the communities on the Eastern Shore.

APhA CEO Tom Menighan (center) was keynote speaker for a Professional Development Seminar and Awards Ceremony on May 1, 2013.

In addition, the School has an annual service day when students, staff and faculty perform services side-by-side at sites in local schools, nursing homes and others. Students and faculty are also heavily involved in a variety of pharmacy organizations, and as such, many local chapters have been established at UMES.

APhA-ASP was established in May 2011 with the guidance of faculty advisors Dr. Zachary Heeter and Dr. Mark Freebery. Membership has grown greatly, and students participated in many outreach programs including diabetes in children presentation and game night, blood pressure screening and smoking cessation programs at intermediate schools, and health fairs at local businesses. The membership has been very active, attending several regional and national meetings, as well as participating in the APhA National Patient Counseling Competition. ASCP chapter was founded in September 2011 with the help of faculty advisor Dr. Cynthia Boyle and now Dr. Gretchen Riker. Events included hosting an ASCP speaker and conducting brown bag sessions. ASHP chapter was founded by students with the guidance of faculty advisors Dr. John Jordan and Dr. Ray Weber in fall 2011. Several events included a health profession mixer that included physician assistant and physical therapy students. The group hosted several speakers to discuss residencies and conducted a COPD/Asthma Awareness booth at the School's health fair, as well as participating in ASHP's clinical skills competition.

> The mission and vision of UMES School of Pharmacy is dedicated to developing exemplary pharmacy professionals and scholars who are committed to patient-centered care, lifelong learning, discovery, and service for diverse communities of the Delmarva Peninsula, the State of Maryland, and around the world.

SNPhA Chapter was chartered in November 2011 with the help of faculty advisor Dr. Miriam Purnell. The group has been very active in promoting AIDS awareness. They held events at a local Walgreens and on campus, and provided information on HIV/AIDS myths and facts and local free testing. The group has organized diabetes health screenings at the local Wal-Mart. Other activities have included stroke and chronic kidney diseases counseling at school health fairs. NCPA chapter was established in September 2012 with the help of faculty advisors Dr. William Harbester and Dr. Mark Freebery. NCPA chapter has conducted health fairs in the community and organized student volunteers for the Eastern Shore Mission of Mercy, a one day free dental clinic for area residents. A Christian Pharmacist Fellowship International (CPFI) chapter was chartered at UMES in early 2011 with the guidance of faculty advisor Dr. Miriam Purnell. Their largest outreach is Operation Christmas, where shoe boxes, filled with necessities and toys, are sent to countries such as Haiti and Indonesia to children in need. They also participate in the Angel Tree program, various leadership retreats, as well as conduct bi-weekly bible study and fellowship meetings at the school.

The Epsilon Nu Chapter of Kappa Psi Pharmaceutical Fraternity was chartered in January 2011 as the first pharmaceutical fraternity established on campus. The chapter started with 13 founding brothers along with the help of faculty advisor Dr. Patrick Dougherty and now also Dr. Dana Fasanella. Some of the outreaches include Making Strides against Breast Cancer, a fundraiser for American Heart Month, a drive for personal hygiene products for the homeless, and Toys-for-Tots. The Gamma Omicron Chapter of Phi Delta Chi Pharmacy Fraternity was chartered in March 2011, with the help of faculty advisors Dr. Tom Sisca and Dr. John Jordan, along with alumnus Dr. Geoffrey Twigg. The fraternity has participated in many outreach programs, including a diabetes awareness booth and walk, Toys for Tots drives, a St. Jude Prescription for Hope letter-writing campaign, volunteer fire department clean-up and bulletin board addressing alcohol abuse. The Delta Nu Chapter of the Phi Lambda Sigma (PLS) Pharmacy Leadership Society was chartered in May 2013 with the guidance of Dr. Hoai-An Truong. In addition to the twenty new student members, the chapter inducted five UMES faculty members who have demonstrated great leadership qualities to further the mission of the school. The Delta Nu chapter is developing by-laws and activities for the upcoming year.

On May 16, 2013, the UMES held the Inaugural Hooding and Awards Ceremony for the School of Pharmacy Class of 2013. Many proud friends, family members, and leadership from the state pharmacy associations gathered and watched the graduates, dressed in academic regalia highlighting pharmacy and UMES colors, olive green and maroon, receive their graduation hood from the Dean. Special thanks to the Maryland Pharmacists Association for sponsoring and presenting an Outstanding Student Achievement Award. After three years of hard work, each graduate received recognition for their dedication and their achievement for completing this rigorous program. All left the event being filled with a sense of hope, pride and a satisfied feeling of accomplishment to have been a part of such a historic and momentous occasion.

The authors would like to acknowledge the assistance of the administration of UMES SOP, especially Dr. Nicholas R. Blanchard, Dean of the School of Pharmacy and Health Professions.

Promoting Provider Status for Pharmacists — Make Your Voice Heard!

Jenna Klempay, PharmD, PGY-1 Community Pharmacy Practice Resident
University of Maryland School of Pharmacy
Cherokee Layson-Wolf, PharmD, CGP, BCACP, FAPhA, PGY-1 Community Pharmacy Residency Director, University of Maryland School of Pharmacy

The initiative to recognize pharmacists as healthcare providers is gaining momentum as various national and state pharmacy organizations begin to collaborate and advocate for this very important and timely issue. The primary objective of this initiative is to amend the Social Security Act to list pharmacists as recognized non-physician providers, which would allow pharmacists to bill Medicare Part B for patient care services.[1] Recognition of pharmacists as providers under Medicare Part B increases the likelihood that private insurers would follow suit to recognize and reimburse pharmacists for clinical pharmacy services as well. Studies show that pharmacist involvement in patient care decreases costs, and improves quality of care and patient safety.[2] The increased access to medical care included in the Affordable Care Act, and the growing shortage of primary care providers combine to make right now the perfect time to advocate for pharmacists to become recognized providers.

National pharmacy organizations have increased their involvement with the issue of provider status by offering robust support to aid pharmacists in obtaining provider status. The American Society of Health-System Pharmacists (ASHP) calls provider status a "top-priority strategic issue" and recognizes the need of a strong national coalition of various groups that understand the value of patient care services provided by pharmacists.[2] The American College of Clinical Pharmacy (ACCP) has also created an initiative to gain provider status for clinical pharmacists in all practice settings.[2] The Academy of Managed Care Pharmacy (AMCP) issued a position statement in support of pharmacists as providers. Additionally, the American Pharmacist Association (APhA) has pledged $1.5 million toward a multiyear, multifaceted, multimillion-dollar effort in obtaining provider status.[3] APhA has created the "Provider Status Task Force" as part of its commitment to this profession-wide initiative.[2]

Advocacy for provider status has not only been heard through national pharmacy organizations, but also through other groups as well. The U.S. Public Health Service supported provider status for pharmacists through a report from the Surgeon General. This report detailed evidence-based information on the patient care services federal pharmacists have been providing for nearly 50 years.[4] This report also promoted the use of the federal model to allow pharmacists to practice collaboratively with other providers to help meet the needs of the growing health care system.[4] Support for provider status from the public has been demonstrated through the Change.org petition started by a pharmacist from the El Rio Health Center in Tuscon, AZ in 2011, and a more recent White House "We the People" petition started by a pharmacy student from St. John's University College of Pharmacy and Health Sciences. It took only 12 days for the "We the People" petition to reach 25,000 signatures, the level which qualifies for review and response by the Obama Administration.[5] This type of critical mass support of provider status is key to raising public awareness of the issue.

What does provider status means for pharmacists? More than receiving reimbursement for patient care services, provider status gives recognition for the advanced training and skills many pharmacists have acquired. Provider status will create more opportunities to update pharmacy practice and broaden their scope of practice, thus enabling pharmacists to become greater contributors to the health care team.

It is important to stress that the goal of provider status is not to allow pharmacists to act as physicians or to practice beyond their scope of training; rather the goal is to allow pharmacists to better complement the care of the other providers, to ultimately improve medication utilization in health care.

Gaining provider status is a daunting task, and it cannot be achieved without the support of the entire profession. It is critical that national and state organizations, pharmacy schools, and health systems collaborate to advocate and support pharmacists in achieving healthcare provider status. You can make a difference in the provider status initiative by becoming involved with a pharmacy organization and organizing efforts to inform your legislators about this important issue. We must make it known what pharmacists can do, provide evidence of improvements pharmacists have already made in the health care system, educate others on the training pharmacists receive, and provide examples of ways pharmacists can contribute to improving the health care system as recognized providers. We must all get involved, make our voices heard, and create change for our profession!

REFERENCES

1. Daigle L, Chen D. Pharmacist Provider Status in 11 State Health Programs. ASHP Policy Analysis. Issued September 2008. http://www.ashp.org/DocLibrary/Advocacy/ProviderStatusPrograms.aspx Accessed 2013 Jun 13.
2. Yao D. Hub on policy and advocacy, February 2013. Pharmacy Today. 2013;36(9):53-54. http://www.pharmacist.com/node/172231. Accessed June 13, 2013.
3. Provider status call to action! APhA CEO Blog. Issued Jaunary 2013. http://www.pharmacist.com/CEOBlog/provider-status-call-action. Accessed June 6, 2013.
4. Improving Patient and Health System Outcomes through Advanced Pharmacy Practice: A Report to the US Surgeon General, 2011. Us Public Health Service Commissioned Corps. http://www.usphs.gov/corpslinks/pharmacy/sc_comms_sg_report.aspx Published December 14, 2011. Updated February 15, 2012. Accessed June 6, 2013.
5. Yap D. Provider status: White House petition hits 25,000 signatures and growing. American Pharmacist Association. http://www.pharmacist.com/provider-status-white-house-petition-hits-25000-signatures-and-growing. Published January 9, 2013. Updated January 10, 2013. Accessed June 6, 2013.

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FIRST *Annual*

BALTIMORE *SCRIPT YOUR FUTURE* MEDICATION ADHERENCE EXPERIENCE

April 11, 2013

by Tom Ching, PharmD Candidate 2013, Notre Dame of Maryland University School of Pharmacy, Jennifer Thomas, PharmD, Manager of Pharmacy Services Delmarva Foundation for Medical Care, and Kelly Cahill and Kerry Owens, Script Your Future

BALTIMORE
SCRIPT YOUR FUTURE
MEDICATION ADHERENCE EXPERIENCE
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Medication adherence is an important and complicated public health issue, as highlighted by the WHO report. Adherence rates in developed countries average only about 50%.[1]

Adherence interventions could have enormous impact on outcomes of therapy. As asserted by the late U.S. Surgeon General, C. Everett Koop, "Drugs don't work in patients who don't take them."

Awareness of medication adherence is the primary focus of the Baltimore *Script Your Future* coalition, which hosted its inaugural Medication Adherence Experience (MAE) the morning of April 11 at Montgomery Park in Baltimore. The forum brought together 65 stakeholders – including representatives from area hospitals, non-profit organizations, doctors' offices, pharmacies, medical and pharmacy schools, and government agencies – who discussed ways to encourage medication adherence and how to overcome barriers faced by health care professionals, patients and family caregivers.

Script Your Future (SYF) is a three-year campaign focused on increasing awareness of the importance of adherence among patients in general, and specifically, those who suffer from three broadly defined chronic conditions: cardiovascular, diabetes and respiratory diseases. SYF is supported by a coalition of more than 130 public and private partners, including health care professional organizations, chronic disease organizations, health insurance plans, pharmaceutical companies, business organizations, consumer groups, researchers, and government agencies. SYF performs outreach efforts through national communications as well as targeted grassroots efforts in six cities: Baltimore, Birmingham, Cincinnati, Providence, Raleigh, and Sacramento.

The SYF Baltimore MAE began with a networking breakfast, followed by a welcome from the moderator, Rebecca Burkholder, Vice President of Health Policy, National Consumers League. Dr. Brian J. Isetts, PhD, RPh, Professor, University of Minnesota College of Pharmacy, currently a fellow with CMS Innovations, delivered opening remarks, commenting on how far the state of the practice has come since the 1960s, when pharmacists could not include medication names on patients' medication labels.

In the second portion of the event, a multi-stakeholder and practitioner panel responded to questions regarding adherence issues from the moderator and attendees. The panel featured Dr. Kathleen Pincus, PharmD, Assistant Professor, University of Maryland School of Pharmacy; Dr. David L. Stewart, MD, MPH, Associate Professor, UM School of Medicine; Dr. Hoai-an Truong, PharmD, MPH, Associate Professor, University of Maryland Eastern Shore School of Pharmacy; and Winston Wong PharmD, Associate Vice President, CareFirst BlueCross BlueShield. Panelists emphasized the importance of developing a trusting relationship, listening to the patient and delving deeper to identify causes of medication non-adherence.

Panelists also discussed adherence screening tools. Dr. Truong reported that his team assesses patients for adherence through a series of specific questions and review of refill information.

Delmarva representatives (l to r) Andrew Foy, Donette Branch and Jennifer Thomas

Dr. Wong discussed CareFirst's use of a 10-point volatility score to identify medication-related problems, with a high score suggesting action should be taken.

Pfizer representatives Michael Steinberg, PharmD, and Pamela Smith, PharmD, delivered an interactive training on "The Art of Active Listening." The session provided insights on ways to actively listen to patients by asking the appropriate questions, providing empathic responses and more. The audience had the opportunity to participate in a role play which consisted of a "provider" and "patient" acting out their assigned case study while an observer monitored for active listening techniques.

The MAE forum closed with a case study presentation by Mark Conklin, PharmD, MS, of Pharmacy Quality Solutions, detailing the organization's Electronic Quality Improvement Platform for Plans and Pharmacies (EQuIPP). That study's objective is to improve medication adherence across five therapeutic categories and to execute a screening and brief intervention model derived from motivational interviewing principles. EQuIPP participants include Rite Aid, University of Pittsburgh School of Pharmacy, CECity, Highmark Blue Cross Blue Shield, and Pharmacy Quality Alliance. Dr. Conklin noted that community pharmacists are able to integrate the screening and interview model within their daily workflow. Publication of the final results are pending, but interim data shows promising results in adherence rates of patients coached by pharmacists in the intervention arm.

The MAE was made possible by members of the SYF Baltimore coalition and event sponsors, including title sponsor Lilly Co.; reception sponsor CARE Pharmacies; session sponsor Sanofi; and in-kind sponsors, the Delmarva Foundation for Medical Care and the Maryland Pharmacists Association.

To learn more about the Script Your Future Baltimore coalition or the next Medication Adherence Experience, email Kerry Owens at kowens@mghus.com.

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REFERENCES

1. Sabaté E, editor., ed. *Adherence to Long-Term Therapies: Evidence for Action*. Geneva, Switzerland: World Health Organization; 2003. http://whqlibdoc.who.int/publications/2003/9241545992.pdf

Check out additional photos…

Right *FLAVORx table – Marybeth Mueller (FLAVORx marketing coordinator) and Ursula Chizhik (FLAVORx PharmD) are joined by volunteers from the University of Maryland School of Pharmacy and SYF Baltimore*

Below Left *Speaker Kathleen Pincus with attendees Ashley Moody and Christine Lee-Wilson*

Below Right *Script Your Future Medication Adherence Experience Coalition!*

131ST ANNUAL CONVENTION

CE's and Catching Up with Colleagues

NMA OTC Challenge 2013

This year it was the University of Maryland School of Pharmacy's turn to take the trophy!

Pictured (l–r): Moderator, Christine Lee-Wilson with the winning team: Tim Rocafort, Lisa Hutchins, Jamie Elsner, Mark Lapourille

Enjoying a little down time —*Annual Crab Feast and Seacrets!*

To see all the pictures from the 131st Annual Convention visit the MPhA Facebook Page!

MPHA TRADE SHOW EXHIBIT

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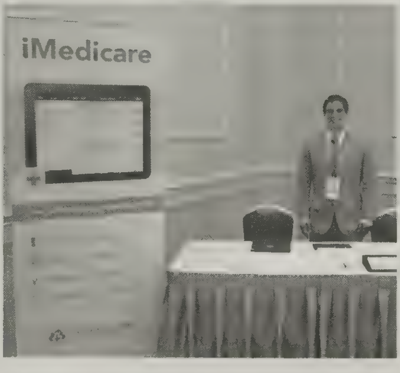

PHARMACY IN EXCELLENCE AWARDS LUNCHEON

Congratulations 2013 Recipients!

1 – Angelo Voxakis is presented the Bowl of Hygeia Award by Boehringer Ingelheim Representative Ruchir Parikh. This award is sponsored by the APhA Foundation and NASPA. Boehringer Ingelheim is the premier sponsor.

2 – Magaly Rodriguez de Bittner accepts the Seidman Distinguished Achievement Award from MPhA President Brian Hose.

3 – Jill Morgan is recognized with the Mentor Award supported by her husband Drew, and daughters Olivia and Grace.

4 – Chai Wang graciously accepts the Young Pharmacists Award from Pharmacists Mutual Companies representative Dave DeFelice.

5 – Gil Cohen accepts the Cardinal Health Generation RX Champions Award from Cardinal Health Representative Brett Daley Ravestein.

6 – John Motsko and Jeffrey Twigg (not pictured) are honored with the Excellence in Innovation Award

7 – Frank Palumbo is recognized as MPhA's 2013 Honorary President.

8 – Retiring MPhA Executive Director Howard Schiff (center) is honored with an MPhA Lifetime Membership presented by MPhA Past Presidents Paul Holly (left) and Jerry Herpel (right).

Scholarship Awards – Michael Goldenhorn (9) and Ziad Haddad (not pictured) are the recipients of the MPhA Scholarship Awards. David Goffman (10) is the recipient of the MPhA Foundation Scholarship presented by Foundation President Cynthia Boyle.

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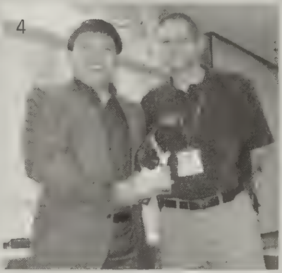

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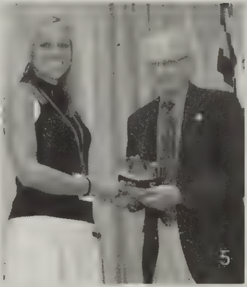

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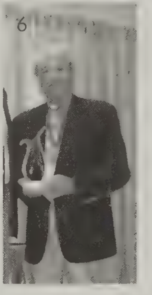

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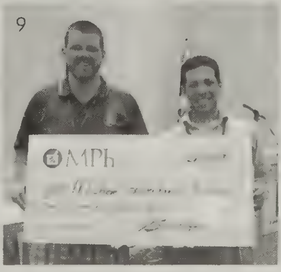

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Additional Recognitions

The following individuals were also recognized for their service to the Association

Kyle Melin – Outgoing Speaker of the House

Brian Hose – Outgoing President

Christine Lee-Wilson – Incoming President

"CYP-erating" Clinically Meaningful Drug-Drug Interactions with Antiretroviral Therapy

Roshni Patel, PharmD
PGY2 Ambulatory Care Resident

Neha Sheth Pandit, PharmD, AAHIVP, BCPS
Assistant Professor Infectious Diseases/Pharmacotherapy

University of Maryland School of Pharmacy

Key Words: HIV, antiretroviral agents, drug interaction

Learning Objectives: After completing this educational program, the participant will be able to:

- Describe the mechanisms of action that involve drug-drug interactions with antiretroviral agents.
- Develop an appropriate intervention following identification of common drug-drug interactions with antiretroviral agents to avoid toxicity or altered efficacy.
- Given an actual or simulated patient being treated for HIV disease, identify clinically relevant drug interactions in the patient's medication regimen, and recommend a management plan.

Antiretroviral therapy (ART) for the treatment of HIV infection has significantly improved over the last 2 decades, with the development of new drugs that have dramatically reduced HIV-associated morbidity and mortality.[1] In fact, effective ART has made HIV a chronic, yet manageable, disease resulting in a better prognosis for patients. With the increased age of the HIV-infected population these patients often require additional pharmacotherapy for other comorbid conditions, which consequentially raises concerns regarding drug-drug interactions (DDIs). For example, in one study of randomly selected patients with HIV infection receiving ART, patients were taking anywhere between 6 and 10 medications, and 41.2% had at least one clinically significant DDI.[2] Therefore, it becomes important for clinicians to recognize and manage clinically meaningful DDIs involving ART. With better understanding of the mechanisms of these DDIs clinicians can identify alternative agents or modify dosages to ensure both safety and efficacy of prescribed medications.

What is a drug-drug interaction (DDI)?

A DDI occurs when the effectiveness or toxicity of one medication is altered (enhanced or diminished) by the administration of another medication. These interactions may be classified as pharmacokinetic (PK) or pharmacodynamic (PD). Pharmacodynamic drug interactions are those where the effects (therapeutic or toxic) of one drug are changed by the concurrent administration of another drug. The effect can be additive, synergistic or antagonistic. In other words, one medication can heighten the expected pharmacologic effect or toxic effect of another drug, or the two drugs could work at cross-purposes, to reduce the anticipated pharmacologic effect (therapeutic or toxic).

The majority of drug interactions with antiretroviral agents are pharmacokinetic in nature. These DDIs can be further classified according to whether the interaction affects the absorption, distribution, metabolism, or elimination of a drug. Transporter proteins, such as P-glycoprotein (P-gp) and enzymes involved in glucuronidation, such as uridine diphosphate (UDP)-glucuronosyltransferases (UGT), can be implicated in DDIs as well. As with most pharmacokinetic drug interactions, the metabolism phase is the most commonly implicated.

Metabolism of Antiretroviral Drug Classes

The majority of DDIs are mediated through effects on hepatic drug metabolism, as many antiretroviral agents are substrates for a CYP450 enzyme. For example, all non-nucleoside reverse transcriptase inhibitors (NNRTIs) and protease inhibitors (PIs) are metabolized by CYP3A4 isoenzymes.[1] Drugs that induce these enzymes are likely to decrease PI and NNRTI efficacy. Examples of CYP3A4 inducers include carbamazepine, phenobarbital, phenytoin, and rifampin. Induction can be a major risk for virologic failure if drug concentrations of PIs or NNRTIs are significantly reduced. On the other hand, drugs that inhibit these enzymes are likely to result in an increase in PI and NNRTI concentrations. Examples of CYP3A4 inhibitors include amiodarone, cyclosporine, azole antifungals, and verapamil. Nucleoside/nucleotide reverse transcriptase inhibitors (NRTIs) are excreted via renal elimination and do not utilize the CYP metabolic pathway; drug interactions with this class are minimal.

Currently, there are two integrase strand transfer inhibitors (INSTIs) available on the market. The first agent in this class, raltegravir, was FDA approved in 2007.[3] A second agent, elvitegravir, was recently approved in 2012.[4] Raltegravir is primarily eliminated through glucuronidation and is not a substrate of CYP enzymes.[3] However, elvitegravir is metabolized by CYP3A enzymes in addition to undergoing glucuronidation.[1,4] Although data on the clinical significance of DDIs with elvitegravir is limited given its recent introduction into the market, clinicians should still be cautious regarding the potential for DDIs because of its involvement with the CYP450 system.

The only CCR5 antagonist currently on the market is maraviroc, which is a substrate of CYP3A4 enzymes and P-gp.[1] In the presence of strong CYP3A4 inhibitors or inducers, the concentration of maraviroc can be altered. Finally, the last class of ART is known as fusion inhibitors. The single agent available in this class, known as enfuviritide (T20), is a peptide that undergoes catabolism to its constituent amino acids.[5] This drug is not affected by CYP enzymes and has not been involved in any clinically significant DDIs to date.[1,5]

It is important to recognize that antiretroviral agents may possess CYP inhibition or induction properties themselves, which may affect the metabolism of other CYP450 substrates.[6] For example; PIs are potent CYP3A4 inhibitors in addition to being substrates, whereas NNRTIs tend to be inducers of the CYP3A4 isoenzyme. NNRTIs also induce other enzymes, such as the CYP2B6 isoenzyme. The metabolic activity of specific antiretroviral agents on various isoenzymes is shown in **Table 1**. The balance of this article will review common pharmacokinetic drug interactions with antiretroviral agents.

Acid Reducing Agents

Certain antiretrovirals require an acidic environment for proper absorption. Concurrent administration of medications that reduce gastric acidity may decrease the absorption of the antiretroviral agent and provide inadequate viral suppression. For example, proton pump inhibitors (PPIs), histamine 2 (H2) receptor antagonists, and antacids have been shown to interact with certain protease inhibitors (PIs). Specifically, studies have shown that the bioavailability of atazanavir, a commonly used PI, is significantly decreased by concurrent use of acid-lowering therapy with H2 receptor antagonists and PPIs.[7] This interaction with atazanavir, however, is not consistent across the entire PI class. This may be attributed to several factors. For instance, atazanavir requires a more acidic environment for absorption than any of the other PIs. Additionally, there is significant interpatient variability of plasma concentrations with ART; this makes it difficult to ascertain the clinical significance of acid lowering agents with atazanavir on the basis of PK studies alone. Despite these factors, clinicians must be prepared to address this common DDI. In patients receiving unboosted atazanavir, PPIs are not recommended for use and alternative acid-lowering agents should be selected.[1] In treatment-naive patients only who are receiving boosted atazanavir, PPIs may be used but should not exceed an equivalent dose of omeprazole 20 mg a day. PPIs may be used by patients taking either fosamprenavir or lopinavir with no concern for an altered effect on safety or efficacy. Separating the administration time of H2 receptor antagonists or antacids from PIs may be sufficient to prevent this DDI. In general, when considering using H2 receptor antagonists, atazanavir and fosamprenavir should be given either 2 hours before or at least 10 hours after the H2 receptor antagonist. It is also recommended that the dose of the H2 receptor antagonist should not exceed a dose equivalent of famotidine 40 mg twice daily in ART-naïve patients or 20 mg twice daily in ART-experienced patients. Finally, atazanavir, fosamprenavir, and tipranavir should be given either 2 hours before or 1 hour after the administration of antacids.

HMG-CoA Reductase Inhibitors

As described above, PIs are CYP3A4 inhibitors and have the potential to interact with HMG-CoA reductase inhibitors (statins), which are CYP450 3A4 substrates. This is complicated because PIs are often responsible for an increase in the production of cholesterol and triglycerides, leading to the development of or worsening dyslipidemia. Although statins are considered to be first line therapy to lower the LDL-cholesterol and reduce the risk of coronary heart disease, concomitant use with PIs can potentially lead to an increased statin serum concentration due to CYP3A4 inhibition. This raises the risk for statin-induced myopathy and rhabdomyolysis. Pharmacokinetic differences between the statins, however, result in difference risks for DDIs.[8-9] Simvastatin, lovastatin, and atorvastatin are metabolized by CYP3A4; fluvastatin is primarily metabolized by CYP2C9; and pravastatin, rosuvastatin, and pitavastatin do not undergo substantial metabolism via the CYP450 pathway. Because simvastatin and lovastatin are more lipophilic than atorvastatin, they tend to have the highest risk for adverse effects when combined with CYP3A4 inhibitors[10]; therefore, these agents should not be used with protease inhibitors. Several studies have shown a potential interaction with either atorvastatin or rosuvastatin and PIs; while these agents may be used, they should be initiated at a low dose, requiring close monitoring with titration upwards based on patient tolerance and to effect.[9,11] Any potential interaction shown with pravastatin and fluvastatin are predicted to be of weak intensity, and because pravastatin has a greater lipid lowering potential, it tends to be the drug of choice for most patients on PI therapy for LDL lowering and cardiovascular risk reduction.

Corticosteroids and Inhalation Therapy

Another clinically important DDI to consider is often discovered in patients with pulmonary disease who are using an inhaled corticosteroid. Fluticasone is rapidly metabolized via CYP3A4; ritonavir and other PIs may inhibit fluticasone metabolism resulting in adrenal suppression and Cushing's syndrome.[12] Over 30 cases of Cushing's syndrome or adrenal insufficiency have been reported with concomitant use of either bronchial or nasal fluticasone in combination with ritonavir boosted PI therapy.[12] Other inhaled corticosteroids such as budesonide and mometasone are also CYP3A4 substrates and theoretically have the same potential for a DDI. In fact, there have been several cases of adrenal suppression with the coadministration of ritonavir and intra-articular triamcinolone injections, inhaled and oral budesonide, and corticosteroid eye drops and ointment.[12] Beclomethasone, however, is not a substrate for this particular enzyme, and has become the drug of choice for patients requiring inhaled steroid therapy.[13] It is important to recognize that salmeterol has also been implicated in DDIs with ART.[1] Salmeterol, a long acting β2 adrenergic agonist, is a major substrate of CYP3A4.[14] When used with strong CYP3A4 inhibitors, an increase in the concentration of salmeterol can be expected, leading to an increased risk for cardiovascular events. Formoterol, on the other hand, is a minor substrate of CYP2C9, and presents less of a risk for DDIs with PIs.[15]

St John's Wort

Although there are several indications for using St. John's Wort, it is most widely utilized for treating mild to moderate depression. This supplement is a substrate for the activation of the pregnane X receptor (PXR), which is one of the transcription factors known to influence gene expression of CYP3A4.[16] Activation of the PXR increases gene expression of CYP3A4; as a result, more CYP3A4 enzyme is available to metabolize medications such as PIs and NNRTIs. Consequentially, there is an increase in the clearance of these two classes of agents when taken concurrently with St. John's Wort. In one study, St. John's Wort was responsible for an 82% reduction in the indinavir concentration.[17] In another study, the clearance of nevirapine was increased by 35% for patients using St. John's Wort concomitantly, leading to a decrease in nevirapine exposure.[18] Because of these findings, St. John's Wort should not be coadministered with ART.

"Boosting"

It is important to recognize that not all CYP3A4 inhibition by PIs is harmful. Such is the case in "boosting" with ritonavir, a member of the PI class. Ritonavir, a potent CYP3A4 inhibitor can increase the bioavailability of a PI inhibitor given concomitantly, in addition to decreasing clearance.[13] This increase in bioavailability is seen most with agents such as darunavir and lopinavir, both of which have low bioavailability when not given with ritonavir.[13] Aside from CYP3A4 inhibition, ritonavir is a PXR activator, as well as both an inducer and inhibitor of P-gp. Because of these multiple mechanisms of action, clinicians should perform a comprehensive medication review to assess for more than one DDI with ART regimens containing ritonavir.

Elvitegravir is coformulated with 3 other agents: cobicistat, emtricitabine, and tenofovir, and is marketed under the brand name Stribild. Having an ART regimen available as a single tablet can lead to higher adherence rates while maintaining high virologic and immunologic efficacy, making the combination product an appealing option for HIV management.[19] However, the risk for DDIs is still a concern. Similar to the concept of "ritonavir boosting", elvitegravir requires "boosting" with the CYP 3A4 inhibitor cobicistat to achieve therapeutic concentrations. Cobicistat has the potential to interact with CYP substrates. However, in comparison with ritonavir, it weakly inhibits CYP2D6.[20] Additionally, it does not strongly induce UGT, inhibit P-gp, or activate the PXR like ritonavir. Theoretically, cobicistat should result in fewer DDIs; however, clinicians should still utilize caution when using cobicistat concurrently with drugs metabolized by the CYP3A4 enzyme.

Conclusion

With new advances being made in ART and HIV management, it is often difficult to keep up with the overwhelming amount of information available to healthcare providers. Several internet-based DDI databases are available to aid clinicians in identifying interactions, such as the HIV drug interaction database (available at http://www.hiv-druginteractions.org/). Additionally, the 2012 HIV guidelines provide recommendations for managing DDIs, and referencing the package inserts of specific antiretroviral agents can offer information on DDIs as well. However, understanding the basis behind the mechanisms through which DDIs occur will ultimately help to identify those interactions that are most clinically significant.

SIDEBAR CASE

It's More than Non-Adherence – It's a DDI!

LM is a 64 y/o African-American male who was diagnosed with HIV 3 months ago. At the time of diagnosis his HIV-1 RNA was 450,000 copies/mL with a CD4 count of 674 (29%) cells/uL. He was started on ART with a regimen of Complera 1 tablet by mouth daily, which is a combination of: emtricitabine 200 mg, rilpivirine 25 mg, and tenofovir 300 mg. The patient has been seen on a monthly basis by his physician, but has not achieved an undetectable viral load. Genotypes have been obtained with each viral load to assess for resistance. However, the physician suspects that the patient is noncompliant to his regimen and refers him to the pharmacy team for adherence counseling.

Patient's HIV and viral load history:

Time	Viral Load (copies/mL)	Resistance Testing
At diagnosis	450,000	No mutations
1 month s/p diagnosis	399,000	No mutations
2 month s/p diagnosis	345,000	No mutations
3 month s/p diagnosis	420,000E	138K

As the pharmacist, you meet with LM for the first time at the patient's 3 month visit after diagnosis. When you ask the patient about adherence, he reports 100% compliance to his medication. He utilizes a pill box, which he fills every Sunday. He is able to state the name of his HIV medication, in addition to the color and size of the tablet. LM also tells you the appropriate dose and frequency of the medication. And finally, he states he is frustrated that you are checking for evidence of nonadherence, because he "never misses a dose!"

LM fills his medications at the Rite Aid Pharmacy down the street, and you call the pharmacy to obtain refill records to ensure consistency with the patient's self-report of strict compliance. Rite Aid informs you that he has picked up a 1-month supply of his Complera tablets consistently for the past 3 months.

Because his refill records indicate compliance, you decide to review all of the patient's medications to check for the presence of any DDIs. His past medical history includes hypertension, dyslipidemia,

Continued on next page

BPH, and depression. His social history is positive for tobacco use and currently LM has reduced his smoking to 5 cigarettes a day. Based on his other comorbid conditions, you update the electronic medical record (EMR) to include the most accurate regimen as follows:

- emtricitabine 200 mg/rilpivirine 25 mg/tenofovir 300 mg (Complera) 1 tablet PO daily
- HCTZ (Hydrodiuril)12.5 mg PO daily
- pravastatin (Pravachol) 20 mg PO daily
- finasteride (Proscar) 5 mg PO daily
- Hypericum perforatum (St. John's Wort) 1 tablet PO daily
- nicotine (Nicorette) gum 1 piece PO as needed for cravings
- MVI (Centrum) 1 tablet PO daily

Upon review of these medications, you recognize that rilpivirine is an NNRTI and is primarily metabolized by the CYP3A4 isoenzyme. You also realize that St. John's Wort is a CYP3A4 inducer. Therefore, when used concomitantly, there is a potential for a decrease in rilpivirine concentration, resistance, and possible loss of virologic response. In reviewing the most recent genotype, you recognize that the E138K mutation is a nonpolymorphic mutation that can reduce susceptibility to rilpivirine by 2 to 3 fold. Therefore, you strongly believe that the DDI between St. John's Wort and rilpivirine led to the development of the mutation, causing resistance to the NNRTI, and consequentially virologic failure. Identification of this DDI at an earlier time could have prevented this end outcome. Now, you are faced with the decision of how to adjust LM's HIV regimen. Because you know that the E138K mutation has a small potential for cross-resistance to other agents within the NNRTI class, you decide to utilize a different antiretroviral class in addition to the backbone of 2 NRTIs. However, LM prefers to keep his HIV medication as a single tablet. Unfortunately, a single tablet that combines 1 PI and 2 NRTIs is not available. Therefore, you turn to the integrase inhibitors. Your recommendation to the physician is to discontinue Complera and initiate Stribild 1 tablet by mouth daily, which is a combination of elvitegravir 150 mg, cobicistat 150 mg, emtricitabine 200 mg, and tenofovir 300 mg. You also make the recommendation to discontinue St. John's Wort. Even though there is no specific data regarding a DDI between Stribild and St. John's Wort, you know that both elvitegravir and cobicistat are metabolized by the CYP3A4 isoenzyme. Theoretically and through a similar mechanism of action as the DDI identified with rilpivirine, St. John's Wort may induce the metabolism of elvitegravir and cobicistat, leading to a decrease in the concentrations of these drugs and continued virologic failure. Finally, you put in a consult to psychiatry so that LM may undergo a comprehensive mental health assessment, since you are discontinuing his St. John's Wort and his PMH is positive for depression. The physician accepts all of your recommendations.

LM returns to the clinic 2 weeks later and has another viral load and genotype obtained. His VL is now 35,000 copies/mL and the genotype shows no new mutations. Although he is still not at goal yet, the physician is ecstatic that his viral load has significantly decreased! LM is also in high spirits today. He recently saw a psychiatrist and has been started on citalopram 10 mg by mouth daily for his depression. Again, you update the EMR, and this time, you recognize that there are no clinically significant DDIs with LM's current medication regimen. After 6 more weeks, the physician sends you an electronic message that reads as follows: "LM has an undetectable viral load ☺!"

References:

1. Panel on Antiretroviral Guidelines for Adults and Adolescents. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services. Available at http://aidsinfo.nih.gov/contentfiles/lvguidelines/AdultandAdolescentGL.pdf.
2. Miller CD, El-Kholi R, Faragon JJ, et al. Prevalence and risk factors for clinically significant drug interactions with antiretroviral therapy. *Pharmacotherapy* 2007;27(10):1379-86.
3. Isentress [package insert]. Whitehouse Station, NJ: Merck & Co., Inc; 2007.
4. Stribild [package insert]. Foster City, CA: Gilead Sciences, Inc; 2012.
5. Fuzeon [package insert]. Durham, NC: Trimeris; 2003.
6. Rathbun RC, Liedtke MD. Antiretroviral drug interactions: overview of interactions involving new and investigational agents and the role of therapeutic drug monitoring for management. *Pharmaceutics* 2011;3:745-781.
7. Falcon RW, Kakuda TN. Drug interactions between HIV protease inhibitors and acid-reducing agents. *Clin Pharmacokinet* 2008;47(2):75-89.
8. Ray GM. Antiretroviral and statin drug-drug interactions. *Cardiology in Review* 2009;17(1):44-47.
9. Fichtenbaum CJ, Gerber JG, Rosenkranz SL, et al. Pharmacokinetic interactions between protease inhibitors and statins in HIV seronegative volunteers; ACTG study A5047. *AIDS* 2002;16:569-577.
10. Schachter M. Chemical, pharmacokinetic, and pharmacodynamic properties of statins: an update. *Fundamental & Clinical Pharmacology* 2004;19:117-125.
11. Calza L, Colangeli V, Manfredi R, et al. Rosuvastatin for the treatment of hyperlipidemia in HIV infected patients receiving protease inhibitors: a pilot study. *AIDS*. 2005;19:1103-1108.
12. Tseng A, Foisy M. Important drug-drug interactions in HIV-infected persons on antiretroviral therapy: an update on new interactions between HIV and non-HIV drugs. *Curr Infect Dis Rep* 2012;14:67-82.
13. Josephson F. Drug-drug interactions in the treatment of HIV infection: focus on pharmacokinetic enhancement through CYP3A4 inhibition. *J Intern Med* 2010;268:530-539.
14. Serevent Diskus [package insert]. Research Triangle Park, NC: GlaxoSmithKline. 2004.
15. Foradil Aerolizer {package insert]. Kenilworth, NJ: Schering Corporation. 2002.
16. Moore LB, Goodwin B, Jones SA et al. St John's wort induces hepatic drug metabolism through activation of the pregnane X receptor. *Proc Natl Acad Sci USA* 2000;97:7500-7502.
17. Piscitelli SC, Burstein AH, Chaitt D et al. Indinavir concentrations and St. John's wort. *Lancet* 2000;355:547-548
18. de Maat MM, Hoetelmans RM, Mathot RA, et al. Drug interaction between St John's wort and nevirapine. *AIDS* 2001;15(3):420-421.
19. Airoldi M, Zaccaelli M, Bisi L, et al. One-pill once-a-day HAART: a simplification strategy that improves adherence and quality of life of HIV-infected subjects. *Patient Prefer Adherence* 2010;4:115-125.
20. Shah BM, Schafer JJ, Priano J, et al. Cobicistat: a new boost for the treatment of human-immunodeficiency virus infection. *Pharmacotherapy* 2013. DOI: 10.1002/phar.1237.

Table 1. Metabolic effects of ART on cytochrome (CYP) P450 isoenzymes[3,4,6,20]

	Antiretroviral	Predicted Enzyme Effect					
	3A4	**2B6**	**2C9**	**2C19**	**2D6**	**1A2**	
PI	Atazanavir	I	--	I	--[a]	--	I
	Darunavir/r	I	D	D	D	--[a]	D
	Fosamprenavir	I/D	D	--	--[a]	--	--
	Indinavir	I	--	--	--	--[a]	--
	Lopinavir/r	I	D	D	D	--[a]	D
	Nelfinavir	I/D	--	D	D	--	D
	Ritonavir	I	D	D	D	I	D
	Saquinavir	I	--	--[a]	--	--	--
	Tipranavir/r	I	D	D	D	I	D
NNRTI	Efavirenz	D	D	I	D	I	I
	Etravirine	D	D	I	I	--	--
	Nevirapine	D	D	D	--	--	--
	Rilpivirine	D	D	?	D	?	D
INSTI	Raltegravir	--	--	--	--	--	--
	Elvitegravir	I	?	D	?	?	?
OTHER	Cobicistat	I	--	--	--	I	--

[a] Enzyme not affected at clinically relevant ART concentrationsAdapted with permission from "Rathbun RC, Liedtke MD. Antiretroviral drug interactions: overview of interactions involving new and investigational agents and the role of therapeutic drug monitoring for management. Pharmaceutics 2011;3:745-781."

Key:

Inhibition = I; Induction = D, Mixed inhibition/induction = I/D; ? = unknown

CONTINUING EDUCATION QUIZ

PharmCon is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. A continuing education credit will be awarded within six to eight weeks.

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The authors have no financial disclosures to report

This program is Knowledge Based – acquiring factual knowledge that is based on evidence as accepted in the literature by the health care professionals.

Directions for taking this issue's quiz:

This issue's quiz on *"CYP-erating" Clinically Meaningful Drug-Drug Interactions with Antiretroviral Therapy* can be found online at www.PharmCon.com.

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Engagement

Chai Wang and Deanna Tran became engaged in February. The couple is planning a May 2014 wedding. Chai currently serves as MPhA Speaker of the House and Deanna is Co-chair of the New Practitioner Network. They both graduated from the University of Maryland School of Pharmacy in 2011.

New Schools of Pharmacy Announce Full Accreditation Status from Accreditation Council for Pharmacy Education

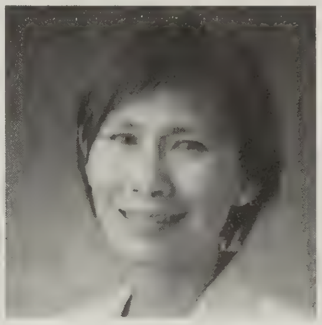
In June, the University of Maryland Eastern Shore School of Pharmacy and Notre Dame of Maryland University School of Pharmacy announced that they have attained full accreditation status from ACPE.

For students enrolled at UMES – especially the charter class that graduated this spring – official recognition by ACPE is an affirmation by peers that the university's curriculum and training meet rigorous professional standards.

NDU held their inaugural graduation ceremony for their class in May. In the announcement of accreditation status, Dean Ann Lin thanked her dedicated faculty and staff.

Top 100 Women in Maryland

Cynthia Boyle and Anne Lin were among those women celebrated at the *Daily Record's 2013 Maryland's Top 100 Women* event held at the Lyric Theatre in May. The award was created in 1996 to draw attention to the contributions being made by women throughout the state. This year more than 500 nominations were received.



New Board of Trustees

The 2013/2014 Board of Trustees was installed at the House of Delegates Meeting held at the Annual Convention in June. Pictured are officers: President Christine Lee-Wilson, Chairman Brian Hose, Vice President Dixie Leikach, and Treasurer Matt Shimoda; new House Officers: Speaker of the House Chai Wang, and Vice Speaker Larry Hogue; Trustees: Doug Campbell, Nicole Culhane, Kristen Fink (not pictured), Mark Lapouraille, Hoai-An Truong, Wayne VanWie (not pictured); and ASP Student Representative Jane Kim.

Do you have good news to share?

Send your **Member Mention** to peggy.funk@mdpha.com.

Please enclose a photo if possible.

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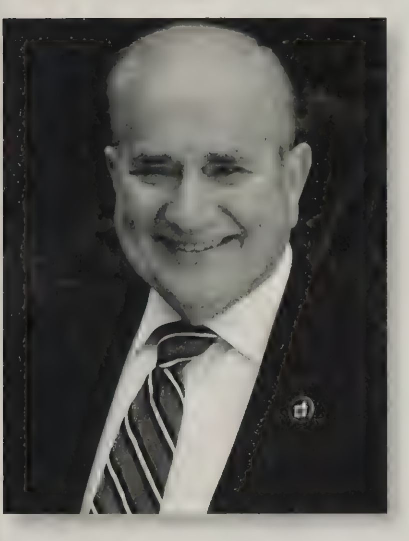

The NPN brings together young pharmacists and student pharmacists who are ready to advance the profession, undaunted by the restraints of the past. They are eager to practice with the knowledge they have acquired and refuse to be pigeon-holed into any workplace that is not progressive.

The times they are "a-changing."

MPhA is in a youth movement as evidenced by the number of new members who participate in the MPhA New Practitioner Network. The NPN brings together young pharmacists and student pharmacists who are ready to advance the profession, undaunted by the restraints of the past. They are eager to practice with the knowledge they have acquired and refuse to be pigeon-holed into any workplace that is not progressive.

To add to this, MPhA and its Professional Development Committee will sponsor the Third Annual MTM Summit on September 28 and 29. This professional development event highlights cutting edge programs from all over the country and across the spectrum of pharmacy practice. The Summit is a two-day program for pharmacists to learn and share MTM experiences and services while obtaining continuing education credits. The program is being held at our home, Montgomery Park, and is well worth the time and expense.

Then there is the continuing education process. Not so very long ago, it was all on paper. Now credits can be obtained and stored on-line with your learning activities electronically maintained by the National Association of Boards of Pharmacy. The CPE Monitor captures all continuing education events and reports them to the Board of Pharmacy in each state. ACPE approval, conflict of interest, permission to print, and efforts to go green are all hurdles that are addressed by CPE Monitor. Currently, the Maryland Board of Pharmacy approved programs are still on paper, but it's just a matter of time before their CEs go electronic as well.

The alphabet soup of acronyms and innovations is just another part of the change that's occurring in our profession. The ACA (Affordable Care Act), ACOs (Accountable Care Organizations), PCMH (Patient Centered Medical Home), HIE (Health Information Exchange), PDMP (Prescription Drug Monitoring Program), have some professionals thinking that they are speaking a foreign language. However, Maryland is in the forefront of efforts to establish new programs such as the EHB (Essential Health Benefits), within the definition of health insurance under the ACA.

MPhA also has an organizational decision to make. Our lease in Montgomery Park is up in three years. The original mandate was to have our own building, however, buying or building the right one within the Board's established parameters has been a challenge. This decision will greatly affect the future of the current youth movement.

The future is here now…embrace and enjoy it. There's no going back!

Howard Schiff

Howard Schiff, PD, Executive Director
hrschiff@mdpha.com

COMMITMENT

*"Unless commitment is made,
there are only promises and hopes; but no plans."*

- Peter Drucker

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Howard Schiff formally retires after 15 years of service

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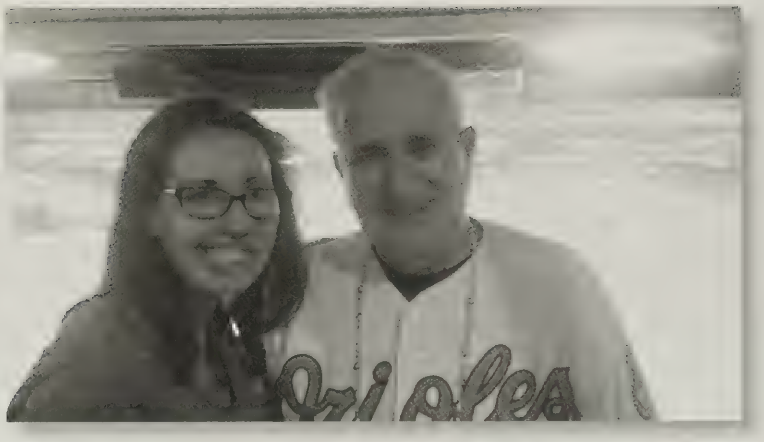

Dear MPhA Members,

I would like to begin this issue's message by thanking Howard Schiff for his 15 years of service as Executive Director to the Association. Howard welcomed me into the Association during my residency in 2005, and I had the privilege of working alongside him for many years during my involvement in the Maryland P3 Program. I would frequently visit Howard in his office and he would always be willing to stop whatever he was doing to catch up and discuss updates with me about the Program. I wish him the very best in the next chapter of his career.

Howard was a major influence in the cultivation of the latest MPhA strategic plan. Thanks to his dedication, MPhA started off strong this year with a strategic planning update meeting whereby committee chairs presented their goals for the upcoming year. Our specific goals for this year include: increasing membership to 500 pharmacists and 60 technicians, retaining New Practitioner members, strengthening the current mentorship program, and continuing to develop and increase collaboration with other state pharmacy and healthcare organizations. I am also excited to announce that MPhA has established a new Legislative Committee that is chaired by Chai Wang. The response has been very enthusiastic with a number of members who have volunteered to join the committee. One of the responsibilities of this committee is to work with the Executive Director to assist in keeping MPhA members informed of legislative and regulatory issues that pertain to pharmacy and healthcare. Stay tuned for information that will be posted in the Monday Message and through our various social media outlets. If you are not a fan of us on Facebook, or member of LinkedIn, or do not follow us on Twitter (@MDPharmacists), this is an excellent reason to sign up.

In September, we held our first Board of Trustees Meeting for the year where I announced that our theme for 2013–2014 is "Stronger by Association." With over 50 participants at our first meeting, who shared my excitement for the upcoming year I am even more confident that we have selected the right theme! During this meeting, the Membership Committee chaired by Dixie Leikach and co-chaired by Julie Mathis, facilitated our first breakout group. Breakout groups will be held during each Board of Trustees meeting and will give pharmacists and students the opportunity to discuss applicable pharmacy and leadership topics. Breakout session upcoming topics will include concerns regarding dispensing narcotics, first impressions when interviewing, and MTM tips. I invite you to participate in one of our sessions. Topics will be listed in the Monday Message along with other MPhA publications.

It most certainly has been a busy couple of months and we have plenty of upcoming events. Please mark your calendar for the upcoming Mid-Year Meeting scheduled for Sunday, February 9, 2014. This will be the first year that we are collaborating with the Maryland Chapter | American Society of Consultant Pharmacists and the Maryland Society of Health-System Pharmacy. The event features four tracks of afternoon programs, with something to meet every pharmacist's and technician's interest! Shortly after, we will be heading to Annapolis for Legislative Day on Thursday, February 20, 2014. Be sure to stay in touch and share your exciting news (promotion, new house, baby, engagement, certification) with the MPhA community. Send all submissions to peggy.funk@mdpha.com for publication in the next issue of Maryland Pharmacist.

Finally, I wish everyone a safe and happy Holiday Season and joyous New Year!

Sincerely,

Christine Lee-Wilson

Christine Lee-Wilson, PharmD
President

Photo: President Christine Lee-Wilson and Howard Schiff at one of Howard's retirement celebrations that took place in Oriole Park.

Contents

MARYLAND PHARMACIST FALL 2013

FEATURES

5 Haiti: Medical Mission

10 New Practitioners on the Move

11 Poisons, Antidotes & Medicines

13 MPhA Executive Director Retires

DEPARTMENTS

2 President's Pad

16 Member Mentions

19 Continuing Education

24 CE Quiz

27 Executive Director's Message

ADVERTISERS INDEX

4 **McKesson**

9 **Cardinal Health Foundation**

15 **Buy-Sell-A-Pharmacy**

26 **HD Smith**

28 **University of Maryland Eastern Shore**

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Graphtech, Advertising Sales and Design

We welcome your feedback and ideas for future articles for Maryland Pharmacist. *Send your suggestions to Peggy Funk, Maryland Pharmacists Association, 1800 Washington Blvd., Ste. 333, Baltimore, MD 21230, or email peggy.funk@mdpha.com, or call 410.727.0746*

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Haiti MEDICAL MISSION

St. Francis of Assisi Church in Derwood, MD was twinned in 1987 with St. Paul's Church in Leon, Haiti, and such a connection continues to this day. The umbrella organization is currently known as the Parish Twinning Program of the Americas. After I personally observed health conditions in Haiti, I established a permanent and ongoing volunteer medical mission. Since that time, two or more teams travel to Leon, Haiti in February, June, and October; and one team travels to Carcasse, Haiti every October. Teams are staffed by St. Francis parishioners, United States Public Health Service (USPHS) officers; Disaster Medical Assistance Team (DMAT) members from Washington, Oregon, and/or Alaska; Nurse Practitioners and students from Johns Hopkins; and other healthcare professionals, students, and lay volunteers. The mission costs approximately $1,000 (tax deductible), of which 60% is for roundtrip airfare to Haiti and 40% for living expenses in Haiti.

I first travelled to Haiti in 1995 as part of a general mission trip to meet with our Haitian contacts, including the pastor of our Haitian twinned church. Each team is usually comprised of three pharmacists, one pharmacy technician, three primary care providers (MD, NP, PA, etc.), one nurse, several lay people, and two leaders. I am a designated team leader and have organized over four dozen missions and have been on the ground in Haiti 15 times. I learned basic Creole and teach this Haitian version of French to other pharmacists and non-Haitian pharmacy technicians. Pharmacy care is provided without using a language translator. We do, however, hire translators for each primary care provider. We try to buy approximately 50% of our

BASIC FACTS ABOUT HAITI

- Haiti is now considered the poorest country in the world.
- 75% of Haitians do not have access to safe drinking water.
- About 3.8 million Haitians do not have enough to eat.
- 40% of the Haitian population does not have access to primary health care.
- 23% of all Haitian children under age five suffer from chronic malnutrition.
- The average adult in Haiti has only three years of education, and fewer than 50% of children attend primary school.

On the cover: Team Pharmacist Jeff Frisch, Haitian Nurse (Name Unknown), Haitian Pharmacy Technician Robinson, and Pharmacist Frank Nice

medical supplies in Haiti to support the local economy and avoid customs issues and bring the remainder in our checked luggage. We bring personal necessities in our carry-ons. Team members are advised what to bring and why (like earplugs for barking dogs, meowing cats, crowing roosters, and snoring teammates). We live in a concrete building, although some choose to sleep outside on the porch or under a tarp to prevent from sweating all night. There is one toilet that flushes somewhere several feet away and one nasty outhouse. Using these facilities is a good way to see local Haitian creatures (e.g., tarantulas, frogs, lizards, etc.). A shower consists of standing in a basin, dumping water on your body, soaping up, and dumping water on your body again. The used water is then poured into the back of the toilet to flush as needed. Also, you lineup with many other people to use the showering/toileting facilities and develop many strategies based upon these logistics! You must drink plenty of water; otherwise, you will become easily dehydrated and constipated. The Haitian diet tends to be low roughage, and we eat beans, rice, plantains, fish, chicken, goat, real Haitian coffee, and especially, spaghetti for breakfast. We work five long days but also enjoy our evenings at the beach, reading, or commiserating with each other.

The teams annually treat approximately 6,000 patients and fill more than 20,000 prescriptions. On each mission, several lives are saved immediately by primary medical interventions. Each mission is funded with approximately $10,000. These funds cover the costs of the medications and supplies, all referrals including transportation of patients, hiring translators for each primary care provider (pharmacists learn pharmacy Creole — a little Creole can go a long way — and work with a Haitian pharmacy technician and do not use translators), and Haitian healthcare providers (Haitian doctor, pharmacy technician, lab technician, and two nurses).

By concentrating our efforts at the two clinics, we have been able to make and witness substantial changes in healthcare in Haiti. The region's citizens now receive health care and education in improved settings with dignity and respect. Due in large part to 18 years of dedicated services, mission teams have:

- Instituted medical records systems

- Set up referral processes
- Established a club foot program
- Installed an indoor sink and toilet and solar panels for onsite electricity
- Established a free clinic for patients to be seen and receive medications when we are not there
- Created medical guidelines to treat all medical conditions that are seen in Haiti
- Set up Haitian accounts to purchase medications in Haiti
- Produced pharmacy Creole instruction sheets for pharmacy staff
- Arranged for collaboration with Cuban healthcare professionals at nearby hospitals and with Haitian foundations

In addition to addressing direct medical care, mission teams have also:

- Built the first 12-grade school in the region
- Provided clean water resources
- Established food programs
- Renovated the clinics

The mission is in either Leon or Carcasse. Carcasse is an isolated village on the far northwestern edge of the peninsular part of Haiti facing Cuba. Team leaders do almost all of the logistic planning and guidance for team members the whole way. We fly from the United States to Port-au-Prince, Haiti. When we fly inside of Haiti, we fly to Jeremie on a Dominican Republic airline on a 14-seater Russian plane, flown by South American pilots, to a dirt runway on the top of a mountain. We then drive four hours or longer depending upon road conditions by truck on mountain roads (actually jungle, mountain trails). If we drive all the way from Port-Au-Prince, the 180 mile trip is a 12-hour drive on a Haitian bus directly to Carcasse. Think you never get carsick; try this trip!

> Haiti is the epitome of a third world nation; in fact, it is the poorest country in the world.

We set up a primary care clinic under a big tarp in Carcasse. The pharmacy is actually in a concrete building. We usually see approximately 150 to 200 patients a day and diagnose by medical history and signs and symptoms. Common diseases include malaria, acide (GI upset), pain, infectious diseases, worms (sometime coming out of children's noses and mouths), malnutrition, scabies, club feet and other malformations, opportunistic infections, cancers and malignancies and growths, and medical conditions you will only read about elsewhere.

Haiti is the epitome of a third world nation; in fact, it is the poorest country in the world. Haiti has little or no infrastructure – only several hundred miles of paved roads and basically no running water, inside toilets, or electricity. Anyone participating on a mission must be flexible and be able to adapt to these conditions immediately. If not, it is better to go right back home (as several members have) than to be a burden upon the rest of the medical team. One must be able to utilize what little is available (e.g., sunlight, flashlights, "outdoor toilet facilities," mosquito repellent, ear plugs, boiled water, beans, and rice). Haitian lay people can be taught to extract teeth and treat club feet. The church pastor can be trained to triage, refer, and/or treat patients at the free clinics we have established. Pastors basically are the governing infrastructure. They feed, educate, transport, counsel, and secure medical treatment for the Haitian citizens. There are basically no authorities outside of the local church. The poverty is beyond belief. People die from easily treatable medical conditions. You will see diseases and disorders that you have never seen before and on a scale you have never seen. Anyone participating in such a mission needs to know this and be able to deal with it hitting the ground.

Haiti is a mosquito and bed bug infested area with very high temperatures and humidity. Temperatures are in the high 80's during the day. Most

Haitian men wear shorts; Haitian women wear skirts and dresses, although it is acceptable to wear pants, skirt-like shorts, or above-the-knee shorts that are modest. The unit of Haitian currency is the gourde. There are five gourdes to the Haitian dollar with a varying exchange rate on American currency. US money can be exchanged upon arrival and unspent Haitian money can be exchanged back into US dollars before departing. Traveler's checks can be difficult to exchange. It is preferable to bring cash or checks (these can be cashed in Haiti through arrangements made with a local bank).

Boiled water for drinking is available in Haiti. Foreigners do not drink tap water anywhere in Haiti (not even for rinsing your mouth or toothbrush). Conservation of water is a major concern as the only water available is from the local mountain stream or bottled water carried in. No hot water is available for bathing; using a bucket to bathe is usually more comfortable and saves water. One must take short bucket showers and flush toilets only when necessary. In Haiti, voltage is 120 volts as in the United States (when the electricity is on). Electricity is usually not available, and power is needed to pump water.

Unless you want to receive very expensive collect phone calls, one never gives out phone numbers. If you give out your email address, you will probably receive multiple requests for money as many will be begging. It is impossible to give to everyone and especially risky if there are others around. There has been an increase in the number of people we work with in Haiti who ask for financial help from members of the medical teams. Although it is always a personal decision to respond to the obvious economic difficulties of clinic staff or other people we hire, we discourage kind offers to help a personal individual since that encourages others, or even the same people, to strongly "hint" for financial support from everyone who comes on the medical missions. For the patients who ask for help, the need is very great. If anyone would like to help, we ask them to consider a contribution to the medical mission.

> You may cry a lot; you may laugh a lot. You bring a whole lot of yourself to Haiti; you take back more of yourself than you could ever imagine.

You will see suffering and misery beyond comparison, but you will offer hope to the Haitian people beyond comprehension. You may cry a lot; you may laugh a lot. You bring a whole lot of yourself to Haiti; you take back more of yourself than you could ever imagine. You arrive refreshed; you leave hot, sweaty, and exhausted (you will never complain about a day of work in the United States again). The Haitian people stay in Haiti, but you are blessed to be able to return home to the United States of America.

For more information visit these websites:

- http://www.sfadw.org/haiti.php
- http://site.hehonline.org/

Welcome new members!

Gregory Constable

Samuel Houmes

Jennifer Katzianer

Lauren Lakdawala

Lanette Sipple

MPhA

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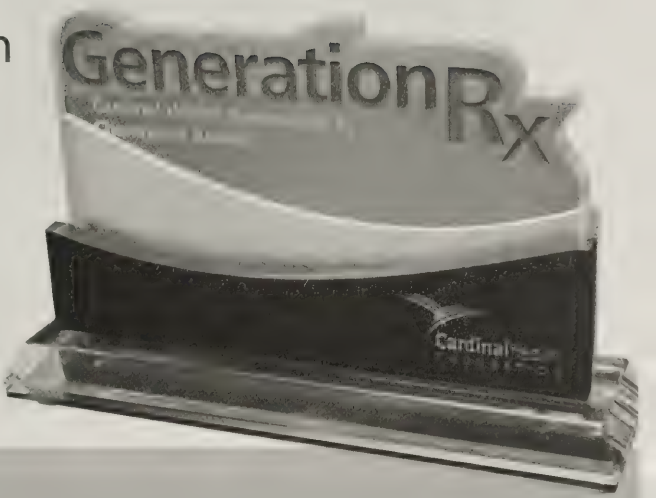
The Maryland Pharmacists Association and the Cardinal Health Foundation congratulate **Gilbert Cohen** as the recipient of the *2013 Cardinal Health GenerationRx Champions Award!*



This award recognizes a pharmacist who has demonstrated excellence in community-based prescription drug abuse prevention. We celebrate Gilbert's outstanding efforts and commitment to raising awareness of the dangers of prescription drug abuse among the general public and among the pharmacy community.

For more information about the award,
visit **cardinalhealth.com/GenerationRx**

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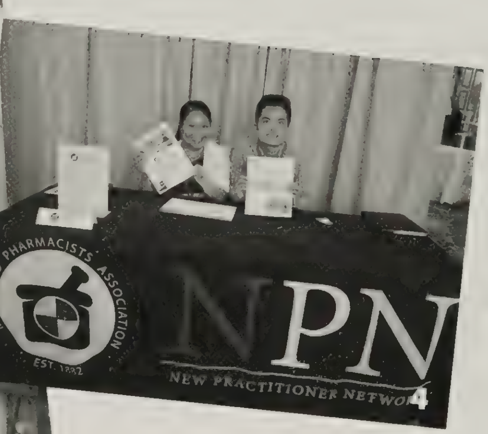
New Practitioners on the Move!

Graduating students and new practitioners gather for networking events as they kick off their inaugural year! For more information about the New Practitioner Network, please visit www.marylandpharmacist.org



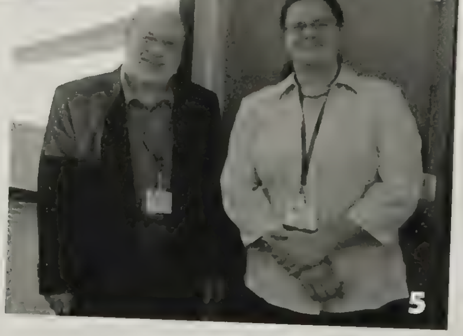


Photo 1: Rx-Roundup at the Cadillac Ranch in April! NPN welcomed graduating students, student liaisons, and new practitioners to our first social, including (back, left to right) Chris Charles, Chai Wang, Jamie Elsner (front, left to right) Shane Borowiak, Krystal Patel, Brandon Nuziale, and Lisa Hutchins.

Photo 2: New practitioners Chris Charles, Amy Nathanson, and Tim Rocafort enjoy a little cross town rivalry at NPN Pharmacists and Pop-ups event in May!

Photo 3: NPN Co-Chair Deanna Tran, Chai Wang, and Andrew Haines networking at Seacrets at the MPhA Annual Convention in Ocean City, MD.

Photo 4: Deanna Tran and Tim Rocafort distributing information about NPN during the Trade Show at MPhA's Annual Convention in June.

Photo 5: New practitioner Sheryl Thedford spoke at the 2013 MPhA Annual Convention with Dr. Raymond Love about antipsychotic use in children and adolescents.

Poisons, Antidotes & Medicines

Nightshades in the History of Pharmacy

Edward Knapp, PharmD Candidate 2014
University of Maryland School of Pharmacy

A SHORT HISTORY OF NIGHTSHADES

Members of the nightshade family, Solanaceae, are among the oldest agents in the Western materia medica, with recorded usage dating back to classical antiquity throughout the Mediterranean. While this family is now best-known for New World agricultural crops, including tomatoes, chili peppers, and potatoes, the classical nightshades of Europe and North Africa included mandrake (*Mandragora officinarum*), datura (*Datura stramonium*), henbane (*Hyoscyamus niger*), and belladonna (*Atropa belladonna*). Indeed, the European nightshades had sinister reputations, being well-known poisons dating back to Roman times, and associated with inducing madness, forgetfulness, hallucinations, and stupor[1,2].

The Solanaceae family member commonly known as 'deadly nightshade' acquired the name, 'belladonna' in 1554, when Mattioli published his treatise on the materia medica of Dioscorides, and referred to the plant as both *'Solatarum maius'* and 'Herba bella donna'[3]. The designation 'belladonna' became ensconced in 1753, when Linnaeus, in the *Species Planatarum*, assigned deadly nightshade its current scientific name: *'Atropa belladonna'*[4]. Although 19th and 20th century sources frequently referenced the mydriatic properties of belladonna as the source of its name, proposing its use as a putative beauty aid by Italian women during the Renaissance[3,5], this is but one hypothesis for Mattioli's designation. In a 1977 article, Forbes presented alternative explanations, including the possibility that 'belladonna' referred to the nature of the hallucinations induced by the plant, rather than its use as a cosmetic preparation[3].

THE CHEMISTRY OF BELLADONNA

During the 19th century, belladonna became the subject of experimentation and investigation into its active constituents. In the 1820's, Rudolph Brandes made acidic extracts of the leaves of belladonna, and found that ingestion or inhalation of the resulting acid salts caused unpleasant side effects: dizziness, nausea, violent headaches, shortness of breath, and mydriasis[6–9]. Brandes named the active extracted constituent "atropia," or atropine[6–9]. In 1831, Mein purified crystalline atropine from belladonna roots[8].

Subsequent characterization of belladonna's constituents revealed that its extracts contain significant amounts of tropane alkaloids, including hyoscyamine, atropine, and small amounts of scopolamine[5, 10]. The belladonna alkaloids are somewhat inter-convertible, with atropine being the dehydration product of hyoscyamine[10–12]. Scopolamine is the epoxide derivative, produced via oxidation of the hyoscyamine tropane ring[11]. All three alkaloids are found in many related plants within the Solanaceae family, in varying proportions[10,12], and are the predominant causes of their poisonous reputations.

BELLADONNA AND ITS ALKALOIDS AS MEDICINES

The US Pharmacopoeia has included belladonna since the earliest editions of its material medica[13], but it did not include a preparation of atropine (atropia) until the 4th decennial revision in 1860[14]. Standards for extracts, tinctures, and tablets of belladonna are still included in the official US Pharmacopoeia and National Formulary[15], although topical ointment and plaster preparations, were retired in the 1965 twelfth edition[16]. USP standard tinctures of belladonna are defined as containing not less than 0.027% and not more than 0.033% w/v belladonna alkaloids[15].

At the turn of the 20th century, belladonna was used to treat conditions thought to be caused by excessive secretions. This resulted in such preparations as anti-asthma cigarettes containing both belladonna and strammonium. Examples included Dr. Guild's Green Mountain Cigarettes and Dr. R. Schiffmann's Asthmador Cigarettes[17,18]. Later in the 20th century, belladonna extracts found uses in combination with phenobarbital as gastrointestinal (GI) anti-spasmodics, including Donnatal®, Elixer Hyodonna, and Hytrona[17]. The use of botanical extracts of nightshades in the US materia medica has been dwarfed, however, by the use of the purified alkaloid constituents of belladonna: atropine, hyoscyamine, and scopolamine.

Of the three, atropine is in widest current use. The World Health Organization (WHO) lists atropine among its minimum essential medications in three categories: short-term procedure sedative, specific antidote (against organophosphate poisoning), and ophthalmic mydriatic[19]. The pharmacology of atropine is similar to that of hyoscyamine. Both are anticholinergic agents that block muscarinic receptors[20,21]. Of the two, atropine is less potent[11]. Atropine's status as a preferred medication is due to its greater stability, and ease of standardization[11]. Atropine's action against parasympathetic signaling is more pronounced in the periphery, making it therapeutically useful as an anti-spasmodic and anti-secretory agent[20,21]. Clinical doses of atropine have few effects on the central nervous system beyond mild vagal stimulation, but overdoses are often accompanied by hallucination and delerium[21]. Atropine is currently approved by the FDA for a wide array of indications including GI spasm, atrioventricular heart block, and reversal of parasympathomimetic poisoning[20]. Ironically, although belladonna cigarettes are long-since retired from therapeutic use, ipratropium, an atropine-like derivative introduced in the late 20th century, is still used as a treatment for asthma patients who cannot tolerate adrenergic bronchodilators[18]. In addition to its therapeutic uses, atropine is also used as an abuse-deterrent in formulations of drugs with abuse potential, dosed so that supra-therapeutic doses will result in unpleasant anti-cholinergic side-effects. The anti-diarrheal diphenoxylate with atropine (brandname Lomotil®)[22] is one such formulation.

Scopolamine's action is also specific for muscarinic receptors, but it affects both peripheral and central sites[23]. Consequently, it is more sedating than atropine, and it is effective at clinical doses for reducing nausea and vomiting, and for inducing amnesia[23]. Scopolamine is currently FDA-approved for multiple indications including motion sickness, postencephalitic parkinsonianism, and mania[23]. Unlike atropine, scopolamine's oral bioavailability is poor. Consequently, it is most commonly administered as a transdermal patch, eye drop, or injection[23]. Scopolamine has also served as a starting point for the development of new drugs. Methscopolamine (brandname Pamine®), bearing a second methyl group on the tropane nitrogen, is an orally bioavailable, FDA-approved adjunct in the treatment of peptic ulcer disease[24,25].

CONCLUSION

The Solanaceae have been in continuous use in Western medicine for over 2000 years, and still represent a major botanical source for modern medicines. From their early use as poisons, to a more advanced understanding of their constituents, actions, and therapeutic potentials, to current designations as essential medications, the use of nightshades and their alkaloids over time has reflected the medical knowledge and practice of each era. Today, nightshade alkaloids continue to be source materials for further pharmaceutical investigation and innovation, and foundations for therapies of the future.

References:

1 Holzman RS. The legacy of Atropos, the fate who cut the thread of life. Anesthesiology. 1998 Jul;89(1):241-249.

2 Lai DC. More on the Legacy of Atropos, with Special Reference to Datura stramonium. Anesthesiology. 1999 June;90(6):1794-1795.

3 Forbes TR. Why is it called 'beautiful lady'? A note on belladonna. Bull N Y Acad Med. 1977 May; 53(4): 403–406.

4 Linnaeus C. Project Gutenberg EBook of Species Planatarum. Fairbanks (AK): Project Gutenberg. 2007. 181-182. Available from: http://www.gutenberg.org/files/20771/20771-h/20771-h.htm

5 Culbreth DMR. A Manual of Materia Medica and Pharmacology, 4th ed. Philadelphia (PA): Lea Brothers & Co. 1906. 539-545.

6 Spratt G, ed. Flora Medica, Vol. 1. London (UK): Callow and Wilson. 1829. 134-135. Available from: http://archive.org/details/floramedicacont00spragoog

7 Stephenson J, Churchill JM. Medical Botany, Vol. 1. London (UK): John Churchill. 1831. 28-29. Available from: http://books.google.com/books/about/Medical_Botany_Or_Illustrations_and_Desc.html?id=54IfAAAAYAAJ .

8 Wood GB, Bache F. The Dispensatory of the United States of America, 5th ed. Philadelphia (PA): Grigg and Elliot. 1843. 137-140.

9 LaWall CH. Four Thousand Years of Pharmacy. Philadelphia (PA): J. B. Lippincott Company. 1927. 454

10 Youngken HW. A Text Book of Pharmacognosy. Philadelphia (PA): P. Blakiston's & Co., Inc. 1930. 624-634

11 Grynkiewicz G, Gadzikowska M. Tropane alkaloids as medicinally useful natural products and their synthetic derivatives as new drugs. Pharm Reports. 2008;80:439-483.

12 Henry TA. The Plant Alkaloids, 4th ed. London (UK): J & A Churchill Ltd. 1949. 64-82.

13 National Medical Convention. The Pharmacopoeia of the United States of America, 2nd edition. Boston (MA): Charles Ewer. 1828. 96-97

14 National Convention for Revising the Pharmacopoeia. The Pharmacopoeia of the United States of America, 4th decennial revision. Philadelphia (PA): J. B. Lippincott & Co. 1871. 108-110.

15 The United States Pharmacopoeial Convention. The Unites States Pharmacopoeia and National Formulary: First Supplement to the USP 36th ed. And NF 31st ed. Rockville (MD): Unites States Pharmacopoeial Convention. Official 2013 August 1. Accessed 8/22/13 at http://www.uspnf.com.proxy-hs.researchport.umd.edu/uspnf/pub/index?usp=36&nf=31&s=1&officialOn=August%201,%202013 .

16 Committee on the National Formulary. The National Formulary, 12th ed. Washington, DC: American Pharmaceutical Association. 1965.

17 Maryland Pharmacists Association. Maryland Pharmacists Association History of Pharmacy Collection. Baltimore (MD): Maryland Pharmacists Association. Accessed August 28th, 2013.

18 Chu EK, Drazen JM. Asthma. American Journal of Respiratory and Critical Care Medicine. 2005 171(11):1202-1208.

19 World Health Organization. WHO model list of essential medicines, 18th list. Geneva (CH): World Health Organization. 2013 April. Available at: http://www.who.int/medicines/publications/essentialmedicines/18th_EML_Final_web_8Jul13.pdf .

20 Micromedex 2.0. Atropine sulfate monograph [Database-DRUGDEX Evaluations]. Bethesda (MD): Truven Health Analytics. 2013. Available from: http://www.micromedexsolutions.com . Accessed August 22 2013.

21 Hoffman D. Medical Herbalism. Rochester (VT): Healing Arts Press. 2003. 122-123.

22 Lexicomp Online. Diphenoxylate and Atropine monograph [Database-Lexi-Drugs]. Baltimore (MD): Wolters Kluwar Health. Updated 2013 July 10. Available from: http://online.lexi.com . Accessed August 28 2013

23 Micromedex 2.0. Scopolamine monograph [Database-DRUGDEX Evaluations]. Bethesda (MD): Truven Health Analytics. 2013. Available from: http://www.micromedexsolutions.com . Accessed August 28 2013.

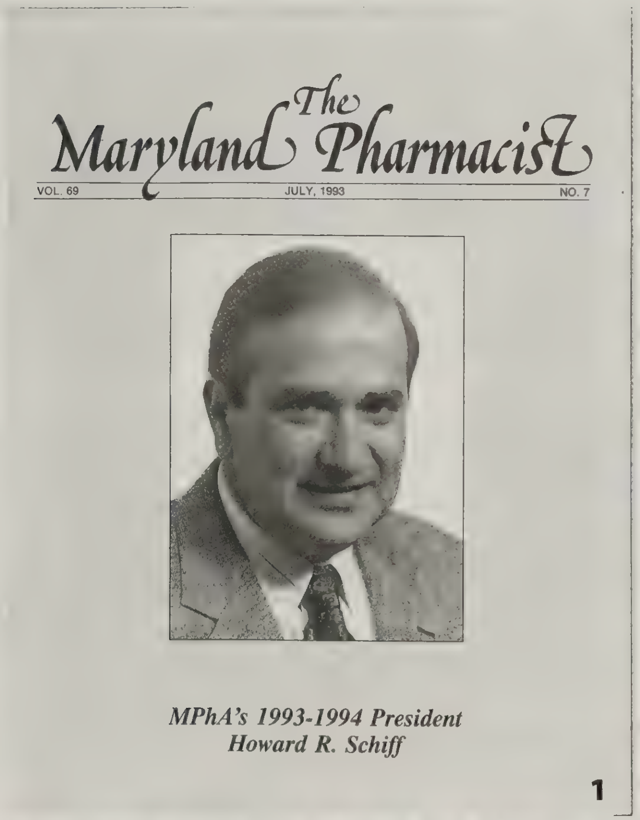
24 Micromedex 2.0. Methscopolamine monograph [Database-DRUGDEX Evaluations]. Bethesda (MD): Truven Health Analytics. 2013. Available from: http://www.micromedexsolutions.com . Accessed August 28 2013.

25 Lexicomp Online. Methscopolamine monograph [Database-Lexi-Drugs]. Baltimore (MD): Wolters Kluwar Health. Updated 2013 July 10. Available from: http://online.lexi.com . Accessed August 28 2013

MPhA Executive Director Retires

On September 30, 2013, Howard Schiff, Executive Director of MPhA formally retired from the Association

Throughout the year, the pharmacy community paid tribute to Howard's 15 years of service and many contributions he made to the profession.



The Maryland Pharmacist

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MPhA's 1993-1994 President
Howard R. Schiff

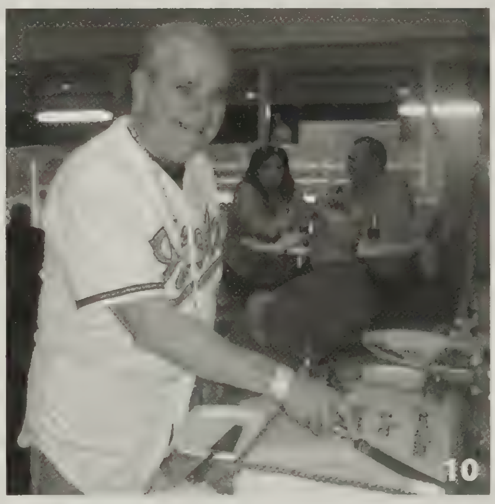
1

Photo 1: Prior to his service as Executive Director, Howard served as MPhA President and was featured on the cover of Maryland Pharmacist in July 1993.

Photo 2: Past President's Council Meeting – April 2013 (front, left to right) Mark Sanford, Murhl Flowers, Matt Shimoda, Howard Schiff, Carol Stevenson, Paul Holly, Mel Rubin, Paul Frieman, Ron Sanford; (back, left to right) Butch Henderson, Cynthia Boyle, Joe Marrocco, Mark Levi.

Photo 3: MPhA Staff – Nancy Ruskey, Peggy Funk, Howard Schiff, and Elsie Prince.

Photo 4: Past Presidents Paul Holly and Jerry Herpel present Howard with an MPhA Lifetime Membership Award during the Awards ceremony at the MPhA Annual Convention in June.



Open House Celebration at MPhA Headquarters – September 10, 2013.

Photo 5: Co-chair of the NPN Ashely Moody and former University of Maryland Dean David Knapp

Photo 6: Howard catches up with MPhA member Deb Weintraub

Photo 7: Chairman of the Board of Trustees Brian Hose, Howard, and Amy Nathanson

Photo 8: Howard's wife Barbara and son Stephen Schiff

Photo 9: During the Open House, Dean Natalie Eddington presented Howard with an award from the his alma mater, the University of Maryland School of Pharmacy

Later in the day, a celebration was held with the Board of Trustees, Past Presidents, close friends, and family at Orioles Park.

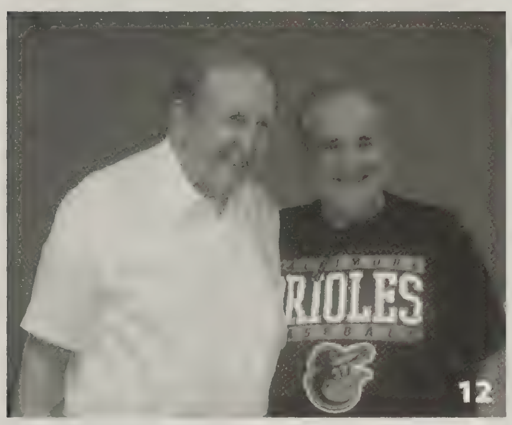
Photo 10: Howard was presented with a custom made Orioles jersey sporting his name and the number 15, symbolizing the number of years he served as Executive Director

Photo 11: Past Presidents Magaly Rodriguez de Bittner and Sam Lichter

Photo 12: Fred Abramson and Howard

Photo 13: Past Presidents Mark Levi, Paul Holly, with Paul's wife Jean

11



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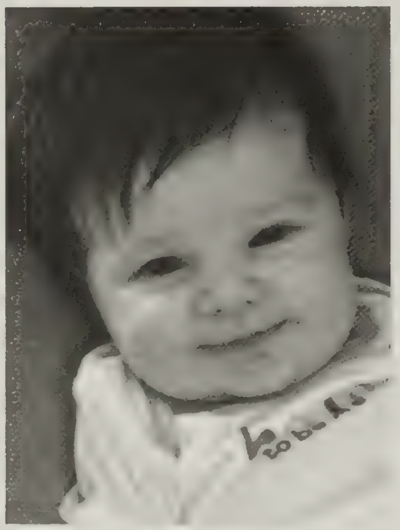


Board of Trustees member, **Kristen Fink** and husband, **Andrew Wherely** announce the birth of their first child, **Ethan Philip Werely**, born on July 17, 2013. Ethan weighed in at 8 lbs. 21 oz., and 21 inches long.

Lenna Israbian-Jamgochian and husband **Hrat Jamgochian** welcomed their first child, **Ara Alexander Jamgochian** on August 2, 2013. Their new baby boy weighed in at 7 lbs., 10 oz. Lenna currently serves as President of the Board of Pharmacy.

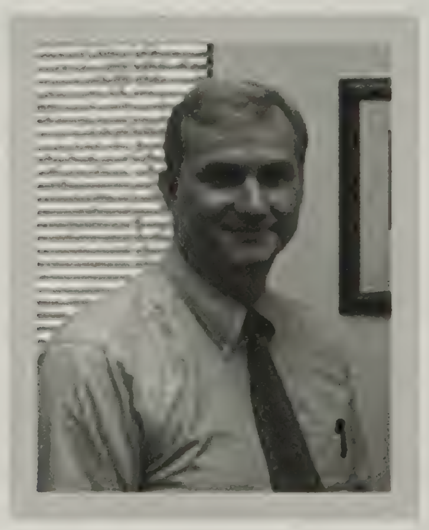
Outstanding Executive Leader Awarded

Jeff Sherr, President of Apple Discount Drugs, has been recognized as the Patient Safety and Clinical Pharmacy Services Collaborative Award recipient for Outstanding Executive Leader. This award serves as an exceptional recognition for his leadership, superior level of service and involvement within the PSPC national initiative to help significantly improve health outcomes and patient safety through integrated clinical pharmacy services.

Mary Lynn McPherson Honored

Mary Lynn McPherson, professor and vice-chair for academic affairs in the Department of Pharmacy Practice and Science at the University of Maryland School of Pharmacy, has received the Robert K. Chalmers Distinguished Pharmacy Educator Award. This award honors her excellence as a teacher, her outstanding achievements as a researcher and scholar, and her overall impact on pharmacy education and the profession.

Innovative Practice Winner Awarded



Congratulations to the NCPA Foundation's Catalyst Grant Award for Innovative Practice Winner, **Wayne VanWie**, owner of Professional Pharmacy, for his research project "Implementation of a Pain Management Medication Therapy Management Service in an Independent Community Pharmacy." Also, to be recognized is Jenna Klempay for her support in producing the grant preparation. This research program provides seed funding in the form of a grant for establishing or improving activities, technologies, and processes related to the provision of community pharmacy-based patient care.

William Charles appointed to the Medical Marijuana Commission

MPhA member **William C. Charles (Chris)** is one of the eleven members appointed by Governor Martin O'Malley to the Medical Marijuana Commission. The Commission has the authority to permit academic research centers to design and implement programs that make marijuana available for medical purposes to defined groups of patients. Dr. Charles is a clinical pharmacist specializing in discharge and readmission reduction at MedStar Franklin Square Medical Center in Baltimore. Previously, Dr. Charles was a staff pharmacist at CVS Pharmacy in Oxon Hill, Maryland. He received his PharmD from the University of Maryland, Baltimore and a Bachelor of Science degree in Biology from University of Maryland, College Park.

2013 Richard Parrish Lecture Award Recipient

Doris Voigt is the recipient of the 2013 Richard Parrish Lecture Award. This recognizes a member of DC-CCP who exemplifies leadership in clinical pharmacy by providing significant and sustained contributions in or for clinical pharmacy at the regional or national level. Dr. Voigt has been actively involved in, or served as committee chair for the Education and Training Committee and is a valued asset to the coordination of educational initiatives.

In Memoriam

MPhA is sad to announce the passing of our friend and co-worker **Nancy Marie Ruskey** on September 9, 2013. Nancy served as MPhA's administrative assistant since 2004. She was a member of the American Legion Auxiliary Post 195 and she enjoyed shopping, cooking, feeding people at gatherings, and she especially loved her dog, Buddy.

Nancy is survived by her husband of 14 years, Ralph H. Bessling; her son, Arthur Ruskey, III, daughter, Tina Ruskey, daughter, Jackie Keller, daughter, Karen Overcash; daughter-in-law, Kelley Ruskey, son-in-law, Mike Fiersuk, son-in-law, John Keller, son-in-law, Jesse Overcash; sister, Carol Anderson, brother, William Duke; granddaughter, Ashley Pettit, granddaughter, Sarah Pettit, grandson, Connor Ruskey, granddaughter, Jordan Ruskey, grandson, Braden Ruskey, granddaughter, Hannah Goode, and grandson, Clay Goode.

Sydney L. "Syd" Burgee passed away on July 26, 2013. His many contributions to pharmacy included service as MPhA's first Speaker of the House and one of the first preceptors for the University of Maryland School of Pharmacy. He was the first recipient of the Society of Health-System Pharmacists W. Arthur Purdum Award for his contributions to hospital pharmacy practice. Syd was a 1955 graduate of the University of Maryland School of Pharmacy and served as Vice President of Operations at Union Memorial Hospital.

Board of Pharmacy New Appointee

Governor Martin O'Malley's newest appointment to the Board of Pharmacy is **Sejal Roy**. Dr. Roy will fill the acute care seat on the Board. Dr. Roy is currently employed with Western Maryland Health System where he is currently developing a pharmacist-based Ambulatory Care Program and MTM Consulting Program for 2014. Dr. Roy is Board Certified in Geriatrics (CGP) and is a 2004 graduate of the University of Sciences in Philadelphia where he earned his PharmD and has a minor in German Studies.

Other recent Board appointments include Commissioners: **Jermaine Smith**, the new Chain representative and **David Jones**, Long Term Care representative and **Charmaine Rochester**, At-Large representative.

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Acetaminophen

CHANGING TIMES AND CLOSER SCRUTINY

Abiola Akinwale, Student Pharmacist

Mary Lynn McPherson, PharmD, BCPS, CPE,
Professor and Vice Chair
University of Maryland School of Pharmacy

Pharmacists can help alleviate some of the confusion surrounding recent changes to OTC and prescription acetaminophen formulations by instructing patients to read labels of all acetaminophen products carefully and providing counseling on appropriate dosing and administration of new formulations.

Learning objectives

After reading this article, the learner will be able to:

- Describe the pharmacodynamic and pharmacokinetic properties of acetaminophen at therapeutic and supratherapeutic doses.
- Identify risk factors for acetaminophen toxicity and implement strategies to minimize risk of acetaminophen overdose.
- Outline recent FDA requirements and initiatives to reduce incidence of acetaminophen overdose.
- Specify recent changes in dosing and labeling for over-the-counter (OTC) acetaminophen products.
- Recognize a pharmacist's counseling role regarding the safe and appropriate use of acetaminophen-containing prescription and non-prescription medications.

Key Words
acetaminophen
analgesics
pain
non-opioid
non-prescription

Acetaminophen (Tylenol®, others) is contained in more than 600 over-the-counter (OTC) and prescription medications.[1] As a single agent, acetaminophen is indicated for relief of fever and mild to moderate pain, including the pain of osteoarthritis. The exact mechanism of action of acetaminophen is unknown but is likely due to inhibition of prostaglandin activity in the central nervous system. Unlike non-steroidal, anti-inflammatory drugs (NSAIDs) such as aspirin and ibuprofen, acetaminophen is not recommended for chronic inflammatory conditions such as rheumatoid arthritis because it has minimal anti-inflammatory properties.[2] Acetaminophen also differs from NSAIDs in its side effects. While NSAIDs are commonly associated with gastrointestinal (GI) irritation especially with chronic use, acetaminophen usually does not cause stomach irritation and can be taken with or without food. However, despite its general tolerability, overdose of acetaminophen can be toxic and lead to liver failure and death.[3,4,5]

Pharmacokinetics of acetaminophen

Acetaminophen may be administered as a tablet, capsule, liquid, rectal suppository, or 15-minute intravenous infusion. When taken orally, acetaminophen is rapidly absorbed from the GI tract, primarily in the small intestine. Relative oral bioavailability is between 85% and 98%; rectal bioavailability of acetaminophen is approximately 50–60% of oral administration. After oral administration, analgesic action begins at approximately 30 minutes, peaks within 1 to 3 hours and can last up to 4 hours (or 6–8 hours with an extended release oral formulation).[6] When acetaminophen is administered with food, peak absorption is delayed but the extent of absorption is not affected.

Acetaminophen is distributed widely throughout most body fluids, but not fat. The apparent volume of distribution is about 0.7 to 1 L/kg in adults and children. Only 10% to 25% of acetaminophen is bound to plasma proteins, although protein binding may be higher with supratherapeutic concentrations.[6]

Metabolism of acetaminophen occurs primarily in the liver via three main pathways: conjugation with glucuronide, conjugation with sulfate, and oxidation by CYP isoenzymes (mainly CYP2E1). Metabolites formed from the glucuronide and sulfate pathways are inactive and account for more than 90% of the dose excreted by the kidneys. About 2% of the dose is excreted unchanged in the urine and 5 to 9% is oxidized by CYP isoenzymes to N-acetyl-p-benzoquinone imine (NAPQI), a toxic reactive metabolite.[4] When acetaminophen is taken as directed, the small amount of NAPQI produced is inactivated via conjugation with glutathione in the liver. However, in situations where more than the recommended amount is ingested, the glucuronide and sulfate pathways can become saturated, causing more of the drug to be oxidized to NAPQI. As large amounts of NAPQI are formed, glutathione stores become depleted and as a result, the liver is no longer able to inactivate the metabolite. Toxic levels of NAPQI bind irreversibly to hepatocytes causing cell death and liver failure. Liver toxicity typically occurs when patients 6 years and older acutely ingest up to 10 g or 200 mg/kg (whichever is less) of acetaminophen, or when children younger than 6 years acutely ingest 200 mg/kg or more.[5] However, liver toxicity can occur with doses less than 10 g and even at therapeutic doses.[4,5,7] Decreased susceptibility to acetaminophen toxicity observed in younger children is most likely due to lower production of NAPQI and a greater degree of conjugation.[8,9]

Once ingested, acetaminophen's elimination from the body is rapid with a half-life of about 2 to 3 hours for immediate-release and about 3 hours for extended-release formulations.[10]

Acetaminophen and liver toxicity

Acetaminophen toxicity is the leading cause of acute liver failure in the U.S., making up about half of all cases reported.[11] The 2007 National Poisoning and Exposure Database System (NPDS) report by the American Association of Poison Control Centers (AAPCC), documented 50,758 nonfatal single-drug product exposures and 74 deaths from acetaminophen alone or in combination products, with 27% of the exposures in children younger than 6 years.[8] In 2009, 401 deaths were attributed to acetaminophen or an acetaminophen-containing combination product.[10]

Acetaminophen is contraindicated in people with severe liver impairment due to the increased risk for toxicity. Other factors that may place individuals at higher risk include ingestion of more than 3 alcoholic drinks a day, prolonged fasting, and concurrent use of drugs that induce CYP2E1, the main enzyme responsible for NAPQI formation.[7,10,13]

The signs and symptoms of acetaminophen toxicity occur in four distinct phases.[14,15] The first phase, which usually occurs during the initial 12 to 24 hours after the overdose, may be asymptomatic in some patients. When present, signs and symptoms include malaise, nausea, vomiting, mild abdominal pain, loss of appetite, and perspiration. During the second (latent) phase, which occurs 1 to 3 days after ingestion of the drug, patients appear well, despite a rise in liver enzymes and bilirubin. Typically, signs and symptoms of liver injury are not evident until phase 3 (3 to 5 days after the overdose) and include right upper quadrant abdominal tenderness, jaundice, hypoglycemia, coagulopathy and encephalopathy. Acute kidney failure can develop in phase 3 and some patients may develop multiple organ failure and eventually die. Phase 4 is the recovery phase.[14] About 70% of patients survive acute liver failure and most recover completely within 7 days; however, recovery may be slower in those who are more severely ill.[4]

About half of the reported cases of acetaminophen-induced liver failure are due to unintentional overdose. People often do not know that the drug product they're taking contains acetaminophen.

About half of the reported cases of acetaminophen-induced liver failure are due to unintentional overdose.[16] People often do not know that the drug product they're taking contains acetaminophen. Acetaminophen is included in a variety of products with different indications (e.g., pain, cough and cold, sleep aid) and sold under many brand and generic labels. Furthermore, drug labels may contain abbreviations for acetaminophen such as "APAP" or have inconsistent formatting that makes it difficult to determine whether the product contains acetaminophen. In August 2013, McNeil, the manufacturer of Tylenol®, announced that it would include a new warning: "Contains acetaminophen. Always read the label." on the caps of Tylenol® bottles. The new warning, which will begin to appear on Extra Strength Tylenol® by October 2013 and on other Tylenol® products in subsequent months, is designed to alert consumers who may not read warnings already included on the product's label.[17]

Overdose could also occur in situations where people do not know the maximum daily dose or are unable to calculate the total daily intake from the information on the label, especially when taking opioid/acetaminophen prescription products. For example, if a physician prescribes one or two tablets of hydrocodone/acetaminophen (Vicodin) 5 mg/500 mg every 4 to 6 hours, a patient taking the medicine as directed could easily exceed the recommended maximum daily dose of 4 g of acetaminophen.

The use of inaccurate dosing devices has also been implicated in overdoses, especially those involving younger children.[18] Many people do not use the dosing devices that come with their liquid acetaminophen product, opting instead to use more familiar kitchen teaspoons or tablespoons, which may not have the appropriate volume. It is also possible, though increasingly rare, that a dosing device is not provided with the acetaminophen product so people resort to using whatever measuring device is available.

Dosing and labeling changes for over-the-counter (OTC) acetaminophen products

In 2009, a joint meeting of FDA's Drug Safety and Risk Management Advisory Committee, the Anesthetic and Life Support Drugs Advisory Committee, and the Nonprescription Drugs Advisory Committee addressed the issue of OTC liquid acetaminophen concentrations. Recommendations made during this meeting included decreasing the maximum daily dose of acetaminophen in OTC products, eliminating OTC acetaminophen combination products, restricting OTC liquid acetaminophen formulations to a single standardized concentration, and requiring a "black box" warning for prescription acetaminophen combination products.

The August 2011 white paper, *NCPDP Recommendations for Improved Prescription Container*

Labels for Medicines Containing Acetaminophen published by the National Council for Prescription Drug Programs (NCPDP) also proposed some guidelines to reduce confusion regarding the labeling of prescription acetaminophen drugs. Some of these recommendations include:

- Use of complete spelling of acetaminophen and other active ingredients on the labels of all acetaminophen-containing prescription medications and the elimination of abbreviations such as "APAP" or "acet," acronyms, or other shortened terms for active ingredients.
- Adoption of a standardized concomitant use and liver warning label for these medications.
- Education to increase awareness about the acetaminophen content of prescription medications and appropriate use of these medicines.

In May 2011, manufacturers of children's liquid acetaminophen products announced that they would voluntarily transition all pediatric products to one concentration: 160 mg/5 mL.[19] This change is consistent with the recommendation made by FDA's Advisory Committee in 2009. McNeil also voluntarily lowered the maximum labeled dosage of the 500 mg tablet (extra-strength Tylenol®) to 3,000 mg per day and vowed to reduce the maximum labeled dosage of the 325 mg tablet (regular-strength Tylenol®) to 3,250 mg per day.[20] However, the maximum dose of acetaminophen recommended by the FDA has not changed, leading to confusion about the true daily maximum dose of acetaminophen. Moreover, since this change was voluntary by McNeil, generic manufacturers are not required to take the same action.

Current FDA requirements for OTC product labels for acetaminophen must currently meet the following requirements:[21]

- "Acetaminophen" must be spelled out in the Active Ingredient section of the Drug Facts label, either highlighted or in bold type.
- A standard liver warning must be included.
- A standard concomitant use warning, alerting consumers not to use the medicine with other (prescription or OTC) drugs containing acetaminophen, must be included.

Current FDA approved dosing of acetaminophen is as follows:[22, 23]

- Adults and children older than 12 years of age
    - 325 to 650 mg every 4 to 6 hours (immediate release) or 1,300 mg every 8 hours (extended release)
    - Maximum dose: 4 g in 24 hours (325 mg strength); 3 g in 24 hours (500 mg strength); or 3.9 g in 24 hours (650 mg strength)
- Children 2 to 12 years of age – 10–15 mg/kg/dose every 4–6 hours, not to exceed 5 doses in 24 hours

In January 2011, the U.S. Food and Drug Administration (FDA) asked manufacturers of acetaminophen-containing prescription products to limit the amount of acetaminophen to no greater than 325 mg per tablet or capsule. As part of this directive, manufacturers are also required to update the labels of these products to warn of potential risk for severe liver injury. Manufacturers have until January 14, 2014 to comply with this limit.[24, 25]

Education and counseling opportunities for pharmacists

Acetaminophen-induced liver damage is preventable. When consumers understand how to use acetaminophen-containing products safely, it can cut down significantly on the incidence of overdose and resulting liver toxicity. Pharmacists can play a key role in reducing risk with acetaminophen use because they often see patients as they pick up their prescriptions or make OTC drug purchases and are therefore able to counsel them on the appropriate use of these medicines. Such information is often unavailable at the prescriber level. For example, patients are not always counseled on reducing or discontinuing the use of other acetaminophen products when they are prescribed prescription opioids/acetaminophen combinations. For patients using analgesics regularly and/or being treated for multiple chronic conditions, pharmacists should work closely with prescribers to prevent overlap of multiple acetaminophen-containing products and educate patients

Important Counseling Points About Acetaminophen[26]

- Severe liver damage may occur and lead to death if you take more acetaminophen than directed, take more than one medication containing acetaminophen, or take acetaminophen while drinking alcohol (especially more than 2–3 alcoholic drinks/day).
- Read all the information on the medicine label, or information provided by your physician or pharmacist.
- Make sure you tell your physician or pharmacist if you have liver disease, or are taking the medication warfarin (Coumadin®) before taking acetaminophen.
- Get medical help immediately if you think you may have taken too much acetaminophen, or if you experience symptoms including flu-like complaints such as loss of appetite, nausea, vomiting, and yellowing of the skin and eyes.

or caregivers on how to reduce the risk of accidental overdose.

Pharmacists can also help prevent overdose due to inaccurate dosing devices. Patients should be counseled on using the dosing devices that come with their liquid acetaminophen products instead of kitchen teaspoons or tablespoons. If a dosing device is not included, the pharmacist should help the patient or caregiver identify an appropriate alternative and provide education on its use.

Pharmacists can also help alleviate some of the confusion surrounding recent changes to OTC and prescription acetaminophen formulations by instructing patients to read labels of all acetaminophen products carefully and providing counseling on appropriate dosing and administration of new formulations. Furthermore, pharmacists should educate patients and caregivers on the signs and symptoms of acetaminophen overdose, including when to seek emergency medical treatment and to avoid concurrent use of alcohol. See the box for important counseling points with acetaminophen-containing products.

Increasing the Dose of Non-prescription Acetaminophen

Case Presentation: AG is a pleasant 62 year old woman who presents in your community pharmacy. "Can you help me?" she asks. "I have arthritis in my knees and my doctor told me to get some Tylenol® for the pain. I've been taking these extra-strength gelcaps and they help, but I always wake up in pain. They also wear off sooner than I'd like. It says on the box that I can take up to six gelcaps a day. Can I take more than this?"

On questioning, Mrs. Gardner tells you her pain is in both knees. When you ask her to show you where it hurts, she grasps both knee caps and rubs them. "The pain is right here in both knees." AG denies the pain moving to other areas. When you ask what brings on the pain, AG responds, "They're very stiff and painful in the morning when I wake up, and it's hard to get around for an hour. Then they limber up a little bit, but the pain never completely goes away. When the pain gets really bad, I sit down and rest, which does help. But when I sit for a while, like watching one of my TV shows for a half hour or so, my knees are very stiff again when I get up, and it takes about 10 or 15 minutes to work that out. Also, I don't need to watch the weather channel; my knees tell me when we're in for rainy weather." In response to asking about what relieves the pain (nondrug interventions), AG tells you "just resting."

You explain the Numeric Rating Scale (0=no pain, 10=worst imaginable pain) and AG tells you the pain at its worst is a 6 out of 10 (when she wakes up in the morning, and when the Tylenol® wears off); at its best it's about a 3 out of 10 (after she takes 1000 mg Tylenol®). She takes two 500 mg Tylenol® gelcaps at 8 am (two hours after she gets up for the day), 2 pm and 10 pm. AG tells you she's had the knee pain for about 2–3 years. The pain has been fairly constant for the past 6–8 months. You ask AG about any associated symptoms that accompany the knee pain. She tells you that it is a bit disturbing that she can hear her knees creaking frequently. She says the pain does not make her nauseated or affect her appetite. She states that her sleep is not affected by the pain, but she always awakens in pain (that's why she wants to take another dose of Tylenol® before bed).

The knee pain has had some impact on her functional ability. She is unable to tend to her garden the way she would like, as she cannot kneel down. She also finds hefting herself up and out of her car to be painful. Other than that, AG states she is able to perform most of her activities of daily living, but wishes she would not be in pain in the mornings. She has a past medical history of hypertension, hyperglycemia and hypercholesterolemia. No other pertinent past medical history. AG denies use of alcohol, and she is not taking any medications that interact with acetaminophen. What should you recommend?

Case Resolution: As you are aware, the recommended nonprescription dose of acetaminophen for children over 12 years of age and adults per the manufacturer is 2 caplets or gelcaps every six hours, not to exceed 6 caplets or gelcaps in 24 hours, unless directed by a doctor. You and AG agree that the acetaminophen is helpful, but a higher dosage may be warranted. You contact AG's prescriber to discuss the case and you recommend she continue the Tylenol®, but at a higher dose – 1000 mg (two 500 mg gelcaps) every six hours – 6 am, 12 noon, 6 pm and as close to midnight as possible. Her prescriber agrees and you instruct AG accordingly. You emphasize the importance of avoiding alcohol and to report any adverse effects immediately. AG agrees and tells you several weeks later that her pain is better controlled, with no wearing off effects, and less pain on awakening.[27]

REFERENCES

1. U.S. Food and Drug Administration. Don't Double Up on Acetaminophen. Available at: http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm336581.htm. Accessed August 25, 2013.
2. Aronoff, David Oates, John Boutaud, Olivier. (2006). New insights into the mechanism of action of acetaminophen: Its clinical pharmacologic characteristics reflect its inhibition of the two prostaglandin H2 synthases. Clinical Pharmacology & Therapeutics, 79(1), 9-19. doi:10.1016/j.clpt.2005.09.009
3. Tan, Hui-Hui Chang,Charissa Martin, Paul. (2009). Acetaminophen hepatotoxicity: Current management. The Mount Sinai Journal of Medicine, New York, 76(1), 75-83. doi:10.1002/msj.20065
4. Larson, A. (2007). Acetaminophen hepatotoxicity. Clinics in Liver Disease, 11(3), 525-48, vi. doi:10.1016/j.cld.2007.06.006
5. Dart, Richard Erdman, Andrew Olson, Kent Christianson, Gwenn Manoguerra, Anthony Chyka, Peter Caravati, E M Wax, Paul Keyes, Daniel Woolf, Alan Scharman, Elizabeth Booze Lisa, Troutman, William. (2006). Acetaminophen poisoning: An evidence-based consensus guideline for out-of-hospital management. Clinical Toxicology, 44(1), 1-18. doi:10.1080/15563650500394571
6. Micromedex 2.0. Drugdex. Acetaminophen. [online] Available from Greenwood Village, Colorado: Thomson Reuters (Healthcare) Inc. Accessed August 28, 2013.
7. Guggenheimer, J. M., Paul. (2011). The therapeutic applications of and risks associated with acetaminophen use: A review and update. The Journal of the American Dental Association, 142(1), 38-44.
8. Chyka P.A. (2011). Chapter 14. Clinical Toxicology. In J.T. DiPiro, R.L. Talbert, G.C. Yee, G.R. Matzke, B.G. Wells, L.M. Posey (Eds), Pharmacotherapy: A Pathophysiologic Approach, 8e. Retrieved August 27, 2013 from http://www.accesspharmacy.com/content.aspx?aID=7968043.
9. Bond, G. R. (2004). Reduced toxicity of acetaminophen in children: It's the liver. Journal of Toxicology. Clinical Toxicology, 42(2), 149-152. doi:10.1081/CLT-120030940
10. TYLENOL® (acetaminophen) Product Information. Available at: http://www.tylenolprofessional.com/assets/TYL_PPI.pdf. Accessed August 25, 2013.
11. Chun LJ, Tong MJ, Busuttil RW, Hiatt JR. (2009). Acetaminophen hepatotoxicity and acute liver failure. Journal of Clinical Gastroenterology,43:342–349.
12. Bronstein AC, Spyker DA, Cantilena LR Jr, et al. (2010). 2009 Annual report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 27th annual report. Clinical Toxicology;48(10):979–1178.
13. Overdoing acetaminophen. (2009). Harvard Health Letter, 34(10), 7-8.
14. Mortensen, M. (2002). Acetaminophen toxicity in children. American Family Physician, 66(5), 734-734.
15. Pajoumand Abdolkarim, Jalali Nasser, Abdollahi Mohammad, Shadnia Shahin. (2003). Successful treatment of acetaminophen overdose associated with hepatic failure. Human & Experimental Toxicology, 22(8), 453-458.
16. Schilling A, Corey R, Leonard M, Eghtesad B. (2010). Acetaminophen: old drug, new warnings. Cleveland Clinic Journal of Medicine, 77 (1): 19–27
17. McNeil Consumer Healthcare announces new safety reminders. McNeil Consumer Healthcare. http://www.getreliefresponsibly.com/press/press.php. Accessed August 31, 2013.
18. Madlon Kay, D J Mosch,F S. (2000). Liquid medication dosing errors. Journal of Family Practice, 49(8), 741-744.
19. Consumer Healthcare Products Association. OTC industry announces voluntary transition to one concentration of single-ingredient pediatric liquid acetaminophen medicines [press release]. May 4, 2011. Available at: http://www.chpa.org/05_04_11_PedAcet.aspx#.Uh9dVazD-P8. Accessed August 25, 2013.
20. Krenzelok, E. R., Mike. (2012). Confusion: Acetaminophen dosing changes based on NO evidence in adults. Drugs in R&D, 12(2), 45-48. doi:10.2165/11633010-000000000-00000
21. U.S. Food and Drug Administration. FDA requires additional labeling for over-the-counter pain relievers and fever reducers to help consumers use products safely [press release]. April 28, 2009. Available at: http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/2009/ucm149573.htm?utm_campaign=Google2&utm_source=fdaSearch&utm_medium=website&utm_term=OTC%20acetaminophen%20label&utm_content=1. Accessed August 26, 2013.
22. U.S. Food and Drug Administration. Notice to Industry: Draft Guidance for Over-the-Counter Products that Contain Acetaminophen. July 3, 2012. Available at: http://www.fda.gov/Drugs/DrugSafety/ucm310469.htm. Accessed August 26, 2013.
23. U.S. Food and Drug Administration. 2012 Draft Guidance. 21CFR201.326(a)(1)(iii)(A) Available at: http://www.fda.gov/Drugs/DrugSafety/ucm310469.htm. Accessed September 2, 2013.
24. U.S. Food and Drug Administration. FDA limits acetaminophen in prescription combination products; requires liver toxicity warnings [press release]. January 13, 2011. Available at: http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/2011/ucm239894.htm. Accessed August 27, 2013.
25. U.S. Food and Drug Administration. Questions and answers about oral prescription acetaminophen products to be limited to 325 mg per dosage unit. Available at: http://www.fda.gov/Drugs/DrugSafety/InformationbyDrugClass/ucm239871.htm. Accessed August 27, 2013.
26. MedlinePlus. Acetaminophen. Available at: http://www.nlm.nih.gov/medlineplus/druginfo/meds/a681004.html. Accessed September 2, 2013.
27. TYLENOL® Extra Strength. Available at: http://www.tylenolprofessional.com/products-and-dosages/extra-strength-tylenol.html. Accessed September 2, 2013.

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It's been a great ride. I wish to thank MPhA for the opportunity and their support and wish continued success for MPhA in the future.

One of the great disappointments at a late stage of life comes with a sentence beginning with I "could've," "should've," or "would've" done something. Disappointment, at not taking that step or opportunity, can leave one remorseful when the opportunity has passed. I didn't want to have to make that sentence when, in my sixties, the opportunity to become Executive Director of MPhA arose.

I had no idea how well I would do or how long I could do it. I only knew that it was something I had to try. I loved being a pharmacist and enjoyed relationships with patients, but I also loved colleagues, policy discussions, and the chance to make a difference. There was no road map, no coaching from my predecessor, only what I knew from experience with MPhA and the old Baltimore Metropolitan Pharmacists Association (BMPA).

An organization must have resources to grow. When I became Executive Director, MPhA was experiencing many challenges. Negotiations for the sale of the leasehold interest in the Kelly Building were at a stalemate and within a few months collapsed. The building was in a state of disrepair and the resources of MPhA were insufficient to fix it. Thanks to the efforts and contributions of MPhA members, the Kelly Building was revitalized. When the University of Maryland Health-System approached the Association again to purchase our leasehold interest, we negotiated from a strong position. The sale of the lease was beneficial to all and allowed MPhA to move ahead professionally while at the same time satisfying the needs of Maryland Shock Trauma. Although we mourned the loss of the Kelly Building, it was time to end its part in the history of Maryland pharmacy.

Now it's 15 plus years later and I'm ready to move on. Too many MPhA members are closer to the ages of my grandchildren than they are to mine. Our members are bright, resourceful, and well-schooled. We are in an age of technology; the province of a younger generation.

I am confident that I leave MPhA in better shape than I found it. Our primary focus has shifted from representing the economic interests of independent pharmacies to promoting the professional development of pharmacists, regardless of their area of practice. We advocate for all.

It's been a great ride. I wish to thank MPhA for the opportunity and their support and wish continued success for MPhA in the future.

Warm Regards,

Howard Schiff

Note: Howard Schiff officially retired as the Executive Director of MPhA on September 30, 2013. MPhA wishes him well in his future endeavors.

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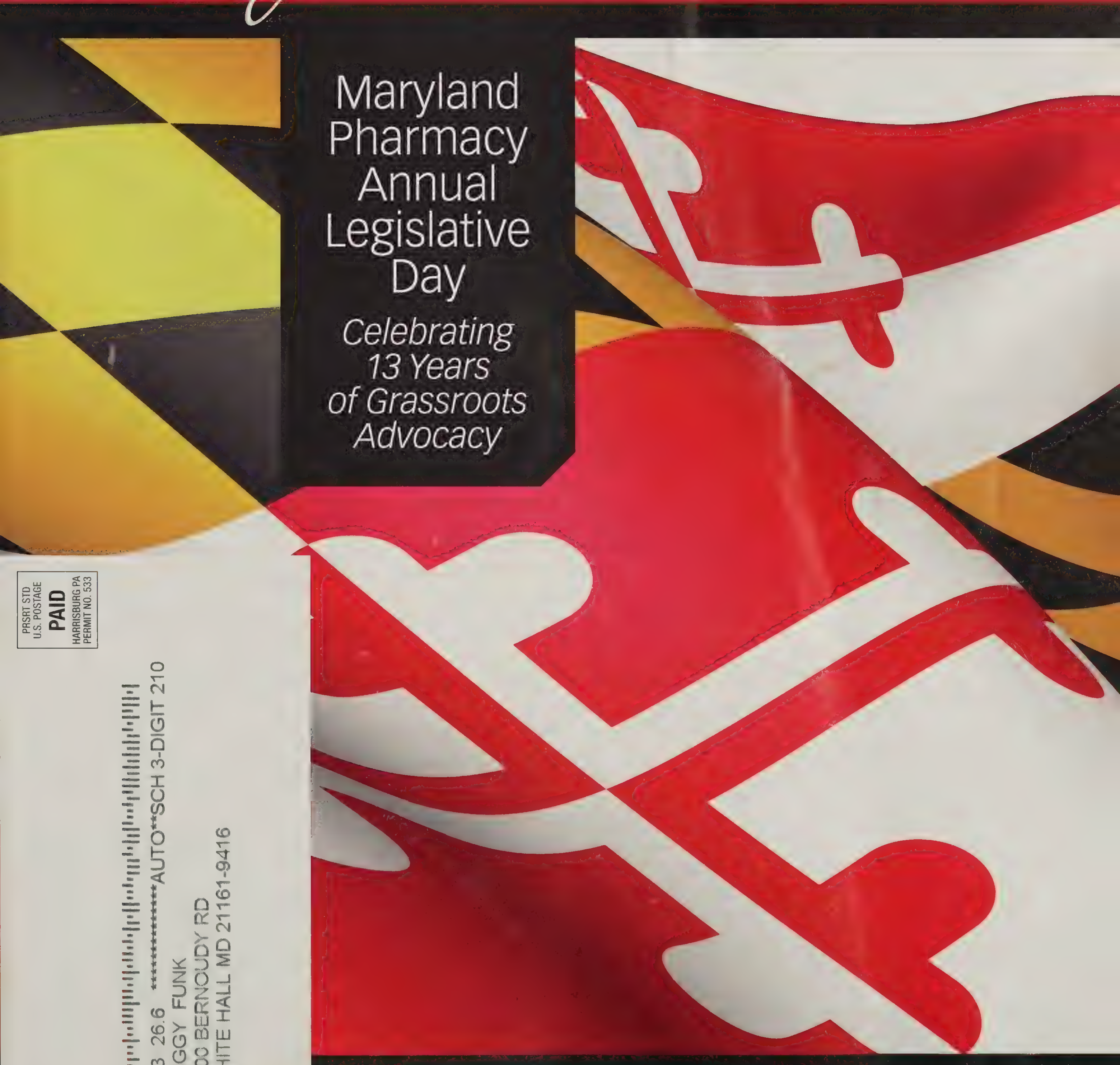

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We have launched!

We truly hope that you enjoy the new website and find it useful and easy to navigate.

Happy New Year!

It continues to be a busy time here at the Association. If it seems like there is a lot going on when you visit or speak with the staff at MPhA Headquarters it is because they have been working tirelessly for months. In October, we planned and held the Second Annual MTM Summit at Montgomery Park featuring pharmaceutical care icon Dr. Linda Strand and numerous other nationally recognized speakers. The expansion to a two-day event and the increased attendance made for an incredibly successful weekend. We again leaned heavily on our Professional Development Committee, co-chaired by **Kristen Fink** and **Hoai-An Truong**, for their guidance in facilitating some of the best speakers in pharmacy. They met the challenge and should be commended for their hard work. We were also proud to partner with MPhS, MD-ASCP, MSHP, PharmCon, Outcomes MTM, MPhA Foundation, Pfizer, Inc., and all three schools of pharmacy. I can tell you that if you were not able to attend you missed a thought provoking weekend and should definitely make plans to be with us next year for the **2013 MTM Annual Summit scheduled for September 28–29**.

Our staff continues to work on our new website/integrated member database. I am happy to announce that we have launched! By now you should have received instructions on how to log in to our members only section and create your profile. The staff has worked hard to transition our membership files to the new system and have completed many hours of training. We truly hope that you enjoy the new site and find it useful and easy to navigate. Our Communications Committee, chaired by **Chai Wang**, will be working with staff to make continual improvements to the site and find new ways to make it useful to our membership. Please feel free to give us your feedback on ways we can make the new system more helpful to you.

In September, the Board of Trustees and committee members participated in a strategic planning session to shape the direction of MPhA for the next two to three years. During the session, it became obvious that we need to refocus some of our efforts on finding ways to support pharmacists in practice, especially those new practitioners among us. We have identified a new committee that will be devoted to the needs of new practitioners from their P4 year through five years after graduation. This committee is still forming and our new co-chairs **Deanna Tran and Ashley McCabe** can use all the help that they can get. If you are interested in being involved as we build and grow our New Practitioner Network, please contact the MPhA staff for further information.

2012 was a busy year and one that left MPhA stronger and better positioned for the future. There is a good deal of excitement around the Association right now and I am happy to be a part of it. I have never seen Board of Trustees meetings with standing room only; however, that has become the norm as the interest among pharmacists and student pharmacists continues to be high.

MPhA appreciates your support and we look forward to serving as your resource for advancing and advocating for Maryland Pharmacy in the New Year.

Sincerely,

Brian M. Hose

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Contents

FEATURES

5 Patient Safety Series — Medication Safety and Quality Improvement in High Risk Diabetes Patients

8 2013 Maryland Pharmacists Association Awards

10 Notre Dame of Maryland University School of Pharmacy — History in the Making

18 2nd Annual Medication Therapy Management Summit

DEPARTMENTS

13 Legislative Advocacy
16 Rx and the Law
20 Continuing Education
26 CE Quiz

ADVERTISERS INDEX

4 **Buy-Sellapharmacy**
7 **CareFirst**
25 **Pharmacists Mutual Insurance Company**
28 **McKesson**

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patient safety series – article 3

NATIONAL PUBLIC HEALTH INITIATIVE AND OPPORTUNITIES FOR MARYLAND PHARMACISTS

MEDICATION SAFETY AND QUALITY IMPROVEMENT IN HIGH RISK DIABETES PATIENTS

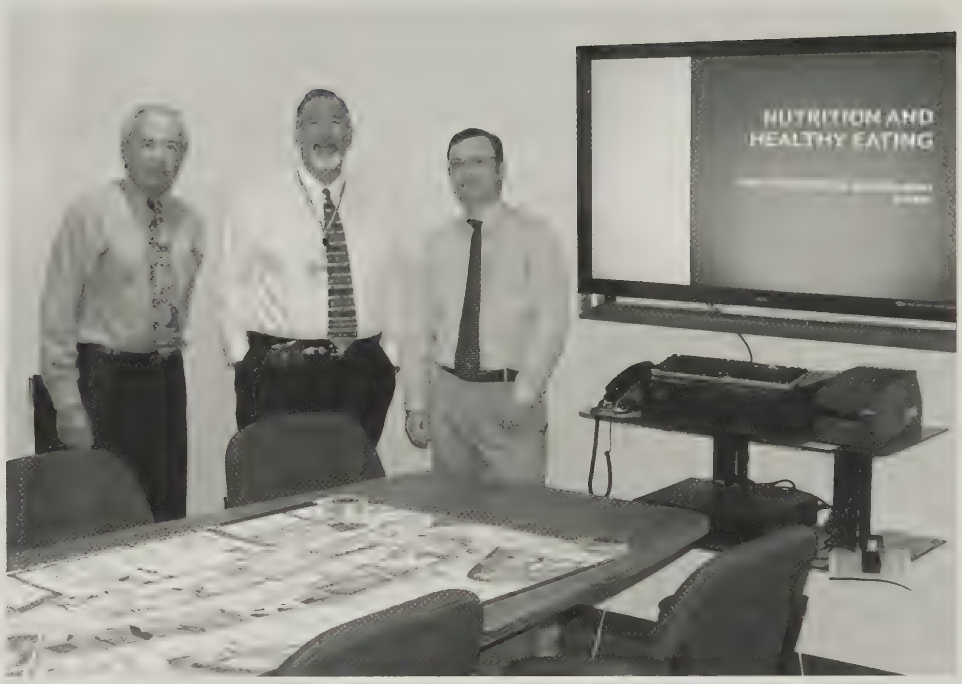
by Ivy Nguyen, PharmD Candidate 2013
Notre Dame of Maryland University
School of Pharmacy

Located in Salisbury, MD, Apple Discount Drugs has been serving residents of Delmarva's Eastern Shore Since 1971. Discount Drugs, Apple Infusion, INC., Snow Hill Pharmacy, INC., and Advantage Medical, INC. make up the Apple Group. The Apple Group offers traditional prescription dispensing services and a wide array of other services such as compounding, home infusion, durable medical equipment, FLAVORx (a prescription flavoring service), individual medication packaging services (Parata PASS™-Patient Adherence Strip System), and a nationally accredited diabetes education center.

In recent years, Apple Discount Drugs has added Medication Therapy Management (MTM) to its menu of services. MTM optimizes drug therapeutic outcomes for individual patients. The pharmacists at Apple work with the patient's physician/s and other healthcare providers to actively manage drug therapy and identify, prevent, and resolve medication-related problems. This process helps to ensure that the patient is on the right medication regimen to help the patient achieve the best outcomes and prevent medication-related harm. As of January 2012, Apple has provided MTM to 700 patients. MTM is part of the covered services for seniors who have Medicare Part D. Currently, MTM services can be billed through the following insurance companies: Blue Cross, Carefirst, Medicare First, Humana Medicare, and Community Care Rx Medicare.

In an effort to direct the community to better health, pharmacists at Apple also provide diabetes education to patients. In 2011, the Apple Diabetes Center provided formal diabetes education to 240 patients. Their pharmacist and certified diabetes educator (CDE) meet with patients in an initial session. After the initial meeting, patients can participate in group classes. Medicare allows for one hour of individual and nine hours of group instruction. The initial visit with the CDE pharmacist, for the diabetes education is usually 45-60 minutes in duration. The goal of this initial meeting is to assess the patients' knowledge of diabetes, identify special needs, and to do a glucose meter review. Subsequent group classes include nutrition, medication use, activity's importance, risk reduction, healthy coping, problem solving, and goal setting. Many referrals to the education center come from Apple's MTM service, while others are self or physician referral.

Apple recently joined the Delmarva Foundation for Medical Care, the Maryland Medicare Quality Improvement Organization, in a project to assess and measure health outcomes in diabetes management and prevent medication-related harm. This project utilizes the Health Resources Services Administration Patient Safety and Clinical Pharmacy Services Collaborative (PSPC) practice model, which focuses on an interdisciplinary team approach to patient health care. The PSPC model combines evidence-based clinical pharmacy with care and management of high-risk, high-cost, complex patients. Leading this project at Apple are John Motsko, RPh, Certified Diabetes Educator and Geoff Twigg, PharmD. In an interview with John he states, "It seemed like a very worthwhile project, especially after seeing so many older patients struggle with the balance of control versus adverse effects-especially hypoglycemia caused by a group of diabetes medications called sulfonylurea agents." John went on to say that the project has changed his approach towards patients. "It made us more aware of the need to monitor the Medicare population's medication compliance vs. outcomes. Many medications are stopped because of adverse drug events (ADEs) and the physician is never aware of this issue, which can cause more complications that may lead to hospitalization. This project has led to much success in resolving medication induced ADEs", said John.



Pharmacists (l–r) John Motsko, Jeff Sherr (Owner Apple Drugs), Geoff Twigg

> "It seemed like a very worthwhile project, especially after seeing so many older patients struggle with the balance of control versus adverse effects-especially hypoglycemia caused by a group of diabetes medications called sulfonylurea agents."

John and Geoff both agree that their future goals are: 1) to be known as "the diabetes and MTM center in the area"; and 2) to expand this service to all Medicare recipients regardless of their glucose levels. Another goal that they mentioned is to reduce hypoglycemia caused by sulfonylureas and other diabetes drugs to virtually zero. In their way of thinking, hypoglycemia in this patient population is not only extremely dangerous, but also reduces compliance resulting in poorer control, increased health care cost, and reduced quality of care.

Apple's MTM service is consistently in the top ranked pharmacies participating in OutcomesMTM (a company that identifies eligible patients for MTM services). Geoff noted, "All four Apple owned pharmacies are rated "best in class", and have held this distinction for over a year now."

John, Geoff, and Apple Drugs' owner Jeff Sherr are well known and active participants in health care groups on the Eastern Shore. John has served as a speaker at the National Community Pharmacists Association (NCPA) national conference on the topic of integrating diabetes services in the community pharmacy and has been featured on the cover of the NCPA's journal, America's Pharmacist (February 2011). The article highlighted this new opportunity for pharmacists in diabetes care. John also spoke at the MPhA Second Annual MTM Summit in October in Baltimore, MD.

Apple Drugs represents one of only a handful of American Diabetes Association (ADA) or American Association of Diabetes Educators (AADE) recognized diabetes centers located within a pharmacy. This in itself is noteworthy and hopefully will spur future professional opportunities for pharmacy in the future. Any patient with an interest in the medication review program and diabetes care can visit the Apple Discount Drugs website at www.appledrugs.com for more information and specific locations.

This material was prepared by Delmarva Foundation for Medical Care (DFMC), the Medicare Quality Improvement Organization for Maryland, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. 10SOW-MD-ADE-111512-220

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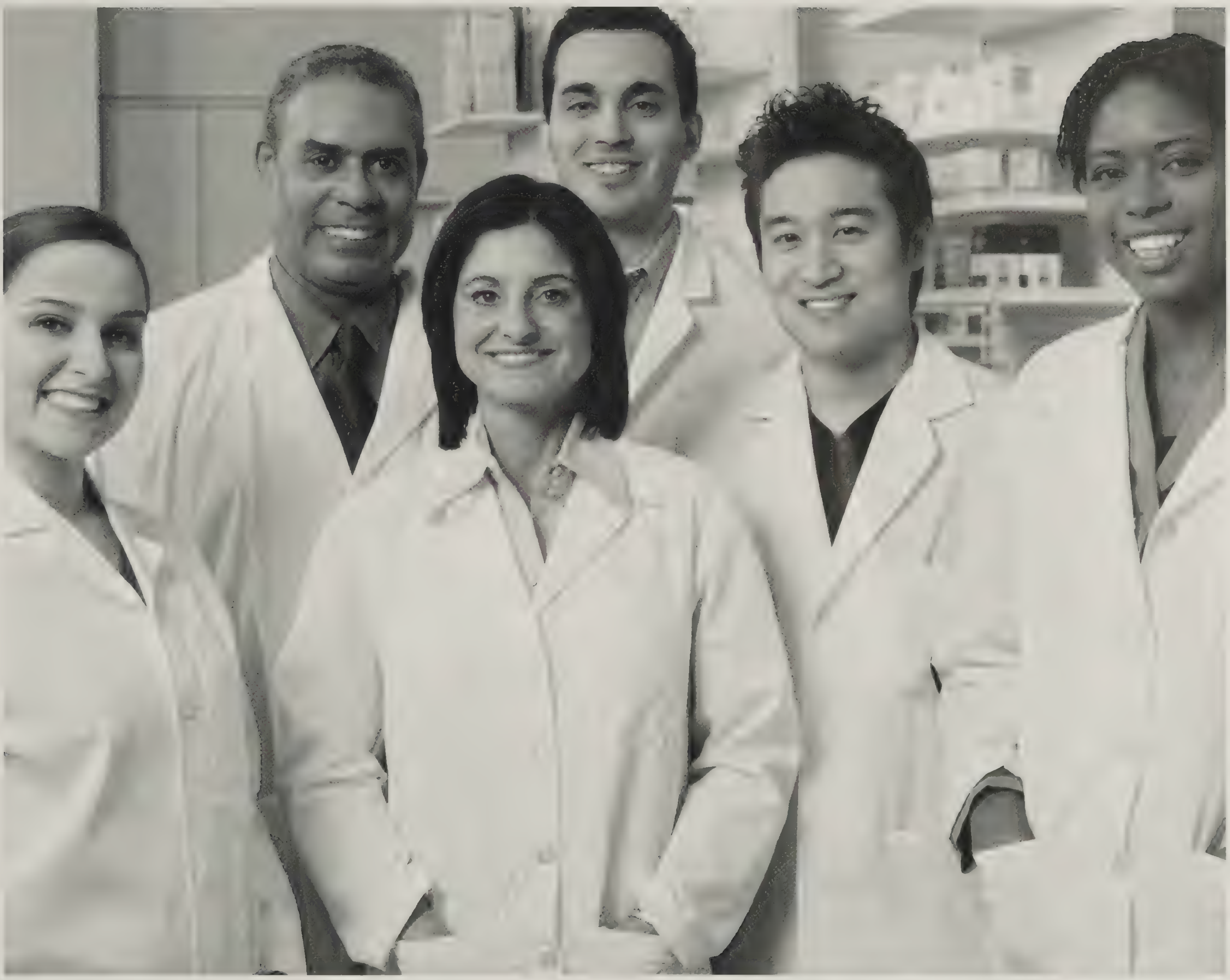

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2013 Maryland Pharmacists Association Awards

Recognizing Pharmacy Excellence

Each year, MPhA recognizes individual professional excellence during the Annual MPhA Convention held in Ocean City, MD. To nominate a deserving pharmacist for one of the awards described below, complete and submit the nomination form below to: Award Nominations, c/o Maryland Pharmacists Association, 1800 Washington Blvd., Suite 333, Baltimore, Maryland 21230-1701. Nominations can also be submitted online at marylandpharmacist.org. **For consideration, nomination forms must be received no later than Friday, March 29, 2013.**

Nominations are reviewed and selections made by the Past Presidents Council. Upon selection, individuals will be notified in advance of the Annual Convention.

Bowl of Hygeia Award sponsored by the American Pharmacists Association Foundation and National Alliance of State Pharmacy Associations Boehringer Ingelheim – Premier Supporter

Established in 1958, the Bowl of Hygeia Award recognizes pharmacists who possess outstanding records of civic leadership in their communities and encourages pharmacists to take active roles in their communities. In addition to service through their local, state, and national pharmacy associations, award recipients devote their time, talent, and resources to a wide variety of causes and community service. Any MPhA member pharmacist who has not already received the Bowl of Hygeia Award is eligible for nomination.

The Bowl of Hygeia is the most widely recognized international symbol for the pharmacy profession and is considered one of the professions most prestigious awards. The Bowl of Hygeia has been associated with the pharmacy profession since as early as 1796, when the symbol was used on a coin minted for the Parisian Society of Pharmacy. The bowl represents a medicinal potion and the snake represents healing.

Understanding the value of the Bowl of Hygeia to the profession of pharmacy, and the need for the managing organizations to focus on fundraising for an endowment, Boehringer Ingelheim stepped in to become the Premier Supporter of the Bowl of Hygeia program in 2012. This allows the base funds that have been previously donated to stay intact while an endowment fundraising program continues. To make a contribution this this program, visit http://www.aphafoundation.org/Content/NavigationMenu/GrantsAwards/BowlofHygeia/default.htm

Maryland Pharmacists Association Seidman Distinguished Achievement Award

Created by Henry Seidman, this award honors a Maryland pharmacist who has performed outstanding service over a number of years, and whose service has resulted in a major impact on the pharmacy profession. MPhA member pharmacists who meet the criteria for this award are eligible for nomination.

Excellence in Innovation Award sponsored by Upshire-Smith Laboratories, Inc.

Established in 1993, this award aims to recognize forward-thinking pharmacists who have expanded their practices into new areas. Any practicing MPhA pharmacist member within the geographic area who has demonstrated innovative pharmacy practice resulting in improved patient care is eligible for nomination.

Distinguished Young Pharmacist Award sponsored by Pharmacists Mutual Companies

This award is presented each year to a pharmacist who has graduated within the past ten years and has made a significant contribution to the profession through service to a local, state, or national pharmacy organization. Any MPhA pharmacist member who has graduated from a school of pharmacy within the last ten years is eligible for nomination.

Maryland Pharmacists Association Mentor Award

This award recognizes individuals who encourage pharmacists, technicians, and/or student pharmacists in the pursuit of excellence in education, pharmacy practice, service, and/or advocacy. Any MPhA pharmacist member who meets the criteria for the award is eligible for nomination.

Cardinal Health Generation Rx Champions Award sponsored by Cardinal Health Foundation

This award honors a pharmacist who has demonstrated outstanding commitment to raising awareness of the dangers of prescription drug abuse among the general public and among the pharmacy community. Any MPhA pharmacist member who meets the criteria for the award is eligible for nomination.

Maryland Pharmacists Association Honorary President

An honorary position on the Board of Trustees is given to a person, not necessarily a pharmacist, who has worked for MPhA or Maryland Pharmacy over a long period of time. Any long standing contributor to the profession or the Association is eligible for nomination.

Award Nomination Form

To nominate an individual for one of MPhA's annual Recognizing Pharmacy Excellence awards, complete and return this form to Award Nominations, C/O Maryland Pharmacists Association, 1800 Washington Blvd., Suite 333, Baltimore, MD 21230, no later than Friday, March 29, 2013. All nominations will be held in strictest confidence by the MPhA Past Presidents Council, which is responsible for selecting the award recipients. The decision of the Council is final. Award recipients will be notified in advance of the presentation of the award.

Please provide the information as requested for each nominee and attach a current resume or a curriculum vita that demonstrates their professional and personal achievements. This information is essential for the Past Presidents Council to make well-informed decision as to which candidates will be selected. Also please include a brief statement explaining why the nominee is deserving of the award. **If you would prefer to make your nomination on line, visit marylandpharmacist.org.**

Bowl of Hygeia Award sponsored by the American Pharmacists Association Foundation and National Alliance of State Pharmacy Associations

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Employment/Practice
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Maryland Pharmacists Association Seidman Distinguished Achievement Award Association

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Excellence in Innovation Award sponsored by Upshire-Smith Laboratories, Inc.

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Maryland Pharmacists Association Mentor Award

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Cardinal Health Generation Rx Champions Award sponsored by Cardinal Health Foundation

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Maryland Pharmacists Association Honorary President

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History in the Making

by Krystal Patel, PharmD Candidate 2013,
NDMU SOP MPhA APPE Rotation

January 2009 is a month I will never forget. It was the time when I was privileged to be accepted by the College of Notre Dame of Maryland University School of Pharmacy (NDMU SOP). Throughout my childhood, I watched several family members on their path to the pharmacy profession. Since I was 12 years old, it has also been my dream. The minute I stepped onto campus, I had a positive feeling the kind of feeling, when you know something good is going to happen and just could not stop smiling. I moved from Tampa, FL to Baltimore, MD, and in just a short time, I soon realized that I was a part of history in the making.

On the warm, sunny morning of Monday, August 20, 2012, the campus of NDMU SOP was open for the start of the 2012 school year. This year was different, though. This was the first year that the School of Pharmacy was filled with all four classes. The dreams and aspirations that we all hoped for, very soon became a reality. As one of three pharmacy schools in Maryland, Notre Dame is dedicated to the education of future pharmacists. The School of Pharmacy provides students with the unique opportunity to learn in an environment that emphasizes patient centered care while optimizing medication management. Since the School of Pharmacy admitted its inaugural class in 2009, there have been many milestones in the school's short history. In May 2010, a groundbreaking ceremony marked the beginning of construction for the G. Avery Bunting Hall, a building that would permanently house the School of Pharmacy. In September 2011, the campus was transitioned from a college to a university and became Notre Dame of Maryland University. Then, at the end of the month of September, the dedication and official opening of the G. Avery Bunting Hall, which included large classrooms, small breakout rooms for group facilitations, and state of the art technology, provided the School of Pharmacy with a sense of stability and roots as the newest member of the Notre Dame family. As a member of the inaugural Class of 2013, I am truly honored to have witnessed history in the making. May 2013 will mark the final milestone for the class of 2013 and the University with its inaugural graduation ceremony.

The Department of Clinical and Administrative Sciences, led by Dr. Michelle Fritsch, has hired several new faculty over the past three years, with specialties in internal medicine, family medicine, community pharmacy practice, drug information, oncology, and psychiatry, to name a few. Our faculty is not only caring and committed professionals, with expertise in their given field, but is dedicated to the professional, as well as the personal growth, of students. The Department of Pharmaceutical Sciences, led by Dr. James Culhane,

Avery Bunting Hall, the new home of the School of Pharmacy, opened in September 2011.

consists of faculty with specialty areas in the biomedical and pharmaceutical sciences. It thoroughly integrates science and clinical curriculum that enables students to apply what is learned in the classroom to patient care. Through the collaboration between the clinical and science faculty, I have developed into a well-rounded student, whereby I can critically think, solve problems, and use the knowledge learned to improve the health of my patients. In addition, the integrated curriculum provided me with the necessary skills to prepare for success during the Advanced Pharmacy Practice Experiences (APPEs).

This year, the Class of 2013 is embarking on a journey, as the first representative of the Notre Dame community in their APPEs. Director Dr. Nicole Culhane and the Office of Experiential Education worked extremely hard for the past three years to provide our students with the best opportunities possible. This year we are privileged to experience APPEs in numerous locations in MD, DC, VA, PA, and internationally in Central America. Some of the highlights of the opportunities include the VA Medical Centers, Food and Drug Administration, Johns Hopkins Hospital, and Nuclear Pharmacy. The Office of Experiential Education strives to provide opportunities for students to provide service to local communities, in Baltimore, as well as unique partnerships that allow students to gain a vast array of knowledge in various aspects of pharmacy. Some of the opportunities are in the following areas of pharmacy: compounding, organ transplant, leadership and administration, oncology, and family medicine. These unique rotations enable students to apply the knowledge learned in the classroom to help local and regional communities of Maryland.

> "The minute I stepped onto campus, I had a positive feeling the kind of feeling, when you know something good is going to happen and just could not stop smiling."

The NDMU SOP's mission is to educate student pharmacists to be compassionate, ethical professionals who improve medication use through collaboration with other health care providers and provide quality patient care to its diverse populations. As part of its mission and vision, Dean Anne Lin and the faculty and staff incorporated a public health initiative into the curriculum, which begins in the fall semester of the P-1 year. The Advocaring Program has really opened my eyes and provides me and my fellow group members the unique opportunity to work with Catholic Charities at My Sister's Place Day Shelter. My Sister's Place is a facility on Cathedral Street that caters to homeless women and provides meals, life lessons, weekly Physician Assistant services, and job searching techniques daily from 7 a.m. to 7 p.m. During my first semester, in 2009, it took a few weeks to fully become acquainted and cope with my fear of working with the vulnerable populations; however after providing health fairs, serving food, taking medication histories, and just having conversations with the women, I came to the conclusion that this was my calling in life. I chose the pharmacy profession because of my ability to create lasting relationships with my patients. I never realized how these women would touch my life and how much I in turn would learn from them. I am thankful for this opportunity and will take what I have learned about society and life and utilize it in my clinical practice in the future. The Advocaring program is one of the many ways NDMU SOP gives back to the Baltimore community, and I am proud to be a part of that community.

The University Welcoming Entrance next to Gibbons Hall located on Charles St. This marked the beginning for the entire campus, when the college transitioned to University status.

After three years of hard work and preparation, the School of Pharmacy is now home to several student organizations that enable students to become more involved in the profession through advocacy and leadership opportunities.

APhA-ASP

APhA-ASP is entering its third year at NDMU SOP and has built a strong reputation of excellence. It all began in 2010, with the strong leadership and involvement of faculty advisors, Dr. Kwadwo Amankwa and Dr. Jane Frumin. Through their knowledge and support, accomplishments have been made through major projects, such as Operation Diabetes, Heart, Immunization, and Self Care and Generation Rx. Several of the planned

"As a member of the inaugural Class of 2013, I am truly honored to have witnessed history in the making."

events for the 2012-2013 year include participating in the Baby Boomer Senior Expo, University of Maryland School of Medicine Community Fest, Rx National Take Back Day, and Step Out Diabetes. Educational seminars for local high school students regarding prescription drug abuse will take place in the fall, as well as prevention tactics at local on campus flu clinics. In addition, the annual Stay Healthy Basketball Tournament and popular Spring Culture Show will make its third appearance. While this is just a glance of Notre Dame ASP's student opportunities, the organization is persistently working to forge lasting relationships and partnerships with local organizations/initiatives in order to benefit the community in the years to come.

Phi Lambda Sigma

The Phi Lambda Sigma Delta Beta Chapter (PLS) elected its inaugural officers in January 2012. With their sixteen members and dedicated faculty advisor, Dr. Sharon Park, PLS was able to accomplish many leadership initiatives just shortly after its inception. The Chapter held an advocacy call-in where they contacted over 100 legislators through email and phone calls about key issues in pharmacy. They also held a Toast Masters program, an international public speaking organization event where students were engaged in a demonstration session that helped enhance public speaking skills. PLS also held a CV and interview workshop sponsored by Target with 60 student attendees. Students were divided into groups, and a Target pharmacist was able to review CVs and conduct mock job interviews. PLS plans to continue with these types of events and much more to develop and improve the leadership of the students at the School of Pharmacy.

Student Society of Health Systems Pharmacy

NDMU SOP introduced this third student organization that began in the fall. I believe this is a great start to the semester because we now have an organization that represents all aspects of pharmacy. It not only strengthens leadership, but it also educates students about the various organizations that advocate for the profession of pharmacy. I admire the students who took on the task of starting the organization at NDMU. It gives me great joy to become a member of this organization, because I hope to complete a residency as part of my pharmacy career, and I have already become fully educated about the advantages that SSHP and ASHP have to offer. Five students (Priya Patel, Andy Liu, Shane Borowiak, Sharanjeet Kaur, and Wyatt Gold) worked during spring and summer 2012 with the guidance and leadership of faculty advisors, Dr. Nathan Culver and Dr. Andrea Gauld. Both faculty advisors and founding students developed the entire approval process, bylaws, and grant proposal.

Graduation

On May 25, 2013, I will become part of a legacy. On that day, I will graduate from NDMU SOP and will never forget that first day when I not only joined a School committed to excellence and innovation, but the day I became a part of a family. I am honored to have the opportunity to learn and grow to become the pharmacist I know I was called to be. With guidance and support from the faculty, staff, and students, I am privileged to soon enter the pharmacy profession and will strive to be the best pharmacist I can be by fulfilling the expectations set forth by the Oath of the Pharmacist and the professionals of NDMU SOP. I am proud to be the future of pharmacy and carry the honorable reputation that I graduated from the first class at NDMU SOP.

Special Thanks to
Dr. Nicole Culhane
for editorial contributions

In May 2012, the APhA-ASP Chapter at NDMU SOP held their second annual Culture Show. Student pharmacists showcased their cultural backgrounds, along with how medicine and pharmacy is utilized in countries all across the world.

The Evolution of Maryland's Pharmacy Practice Act

by Chai Wang, PharmD

Immunizations within the pharmacy. Collaborative practice agreements between a physician and pharmacist. Pharmacists performing lab testing. Just a little over a decade ago, these were merely dreams for Maryland pharmacists. In recent years, pharmacy practice in the state of Maryland has expanded steadily to include these opportunities. Going beyond the traditional dispensing functions within a pharmacy, these new additions to the pharmacy practice act are the result of years of dedication and hard work. Through demonstration of countless hours of clinical expertise and outcomes, pharmacists have shown legislators that they are not only capable, but qualified to contribute to the health of the citizens of the state of Maryland.

What many pharmacists do not realize is that the group responsible for coordinating these efforts is the Maryland Pharmacy Coalition (MPC). Created in 2000, MPC has expanded to include all four professional state associations, the student government associations of all three schools of pharmacy in Maryland, and is supported by affiliate members including the DC chapter of the American Colleges of Clinical Pharmacy and the three schools of pharmacy. Each member organization supports MPC by contributing to the discussion of pharmacy legislation to develop position statements, as well as leading the Coalition in the chairperson capacity on a rotating basis.

MPC's signature event is Pharmacy Legislative Day, which typically takes place annually within the first two weeks of February. Each year the event has successively grown, from a handful of participants to over 400 pharmacists and student pharmacists. The event's success has been boosted by the addition of two schools of pharmacy in the state which has expanded the coverage of legislative districts by pharmacists and student pharmacists to over 95 percent. The personal connections these dedicated individuals make with their local legislators have been instrumental to our successes in recent years.

COLLABORATIVE PRACTICE AND THE SUNSET CLAUSE

The advent of collaborative practice for pharmacists in Maryland was a major victory for MPC. While collaborative practice (Drug Therapy Management as it is called Maryland) was established in 2002, it was at the time provisional legislation with an attached sunset clause. This meant that unless the Maryland Legislature opted to renew this legislation, pharmacists would no longer be able to participate in collaborative practice contracts with their physician partners after 2008. The sunset clause was extended in 2008, and removed in 2010, but many roadblocks to widespread implementation remained. As with the original legislation, each contract still required the approval of both the Board of Pharmacy as well as the Board of Physicians. In 2012, MPC went back to the General Assembly and described the challenges pharmacists faced when working to obtain Board of Physician approval and renewal of established contracts. Finally, the law was amended so that now collaborative practice contracts only need to be reviewed by the signing pharmacist and physician leaving only the respective boards responsible for credentialing the practitioners. This revision has significantly increased opportunities for pharmacists in the community setting to engage in collaborative therapy services and will ultimately enhance health care access to patients. Without the tireless efforts of Pharmacy Legislative Day participants bringing collaborative practice to the attention of their legislators, the expansion of collaborative practice within the state would have occurred at a much slower pace.

IMMUNIZATIONS

It is now commonplace to see publicity for pharmacy-administered immunizations in the community setting. While the influenza vaccine has been available for some time, recent additions include the pneumococcal and herpes zoster vaccines. The influenza vaccine is now administered by protocol, and has been expanded to pediatric patients over the age of 9 years. Pneumococcal herpes zoster vaccines are currently restricted to adults by prescription. MPC continues to advocate for a more significant role for pharmacists in the immunizations arena. All of our neighboring states now allow pharmacists greater vaccination privileges than we have here in Maryland. In fact, our state currently has one of the two most restrictive pharmacy practice acts in the nation with respect to pharmacist delivered immunizations. MPC is working with other regional partners and interested legislators to bring an expanded immunization bill to the legislature for this year's

CURRENT MEMBERS OF THE MARYLAND PHARMACY COALITION

MEMBERS	***AFFILIATE MEMBERS***
Maryland Pharmacists Association	Notre Dame of Maryland University School of Pharmacy
Maryland Society of Health-System Pharmacists	University of Maryland School of Pharmacy
Maryland Chapter of the American Society of Consultant Pharmacists	University of Maryland Eastern Shore School of Pharmacy
Maryland Pharmaceutical Society	DC Chapter of the American Colleges of Clinical Pharmacy
Notre Dame of Maryland University SGA	
University of Maryland SGA	
University of Maryland Eastern Shore SGA	

legislative session. We are confident that there will be some major improvements for pharmacy.

OTHER ISSUES

MPC serves as a forum for member organizations to discuss important issues which may affect pharmacy interests in Maryland healthcare. Position statements have been formed regarding prescription benefit managers, medical marijuana, physician dispensing, and product distribution. All of these issues affect pharmacists regardless of their practice setting.

A TYPICAL LEGISLATIVE DAY

Pharmacy Legislative Day is an action-packed half-day affair highlighted by hundreds of participants professionally dressed in their white coats. For the past two years, the event has kicked-off with a legislative briefing at St. John's College FSK Auditorium, located just behind the House Office Building. Because legislation is constantly changing and new information often arises within a day or two of the event, last minute updates are essential to ensure the message provided by the Coalition's efforts is consistent throughout the day. All participants are divided into legislative teams targeting their respective residential or business districts. It is not uncommon for more seasoned participants to guide first-timers through the inner workings of a legislative visit. All teams are invited to attend the General Assembly, where they are recognized by the delegates from both the Senate and the House for their participation in Legislative Day. The active engagement and energy of these pharmacists and student pharmacists is key to the Coalition's success.

WHY YOU SHOULD PARTICIPATE!

This year's 13th Annual Legislative Day is scheduled for Thursday, February 14, 2012 in Annapolis

This is an important grassroots event which enables pharmacists to speak with one voice on important legislation which impacts pharmacy. While not all issues may impact your practice directly, by participating in this event, you are showing support for your fellow pharmacists, expansion of quality patient care services, and ensuring that the public understands and appreciates your role as a pharmacist within the state of Maryland. Without your voice, legislators cannot and will not understand how important you are in improving healthcare for Maryland citizens.

To register for Legislative Day, visit marylandpharmacist.org. We look forward to seeing you there!

ARRIVAL IN ANNAPOLIS
7:30am

INTRODUCTIONS AND LEGISLATIVE BRIEFING
7:45am

LEGISLATIVE VISITS BEGIN
8:30am

GENERAL ASSEMBLY
10:00am

WRAP-UP
12:00pm

Gathering in St. Johns Auditorium in Annapolis prior to the start of Pharmacy Legislative Day.

Damages Awarded in Negligence Cases

by Don. R. McGuire Jr., RPh, JD

This series, Pharmacy and the Law, *is presented by Pharmacists Mutual Insurance Company and your State Pharmacy Association through Pharmacy Marketing Group, Inc., a company dedicated to providing quality products and services to the pharmacy community.*

As many prior articles in this series detailed, there are many factors to consider when filing or defending a negligence suit. This article will detail what the plaintiff gains in the event that they are able to prove and win their case. The answer is money, which you probably already guessed, but this money can be awarded in different ways that may affect its ultimate payment.

Money damages are broken down into two main categories; compensatory damages and punitive damages. Compensatory damages are, as their name implies, meant to compensate the victim of a negligent act. Compensatory damages are further subdivided into two types; economic and non-economic damages. Economic damages (also called special damages) are the more tangible in nature. Examples are lost wages (past and future), medical expenses (past and future), funeral expenses and other remedial costs. Non-economic damages (also called general damages) are more intangible. These include physical pain and suffering, mental anguish, impact on lifestyle and/or ability to work and permanency of injury. Because non-economic damages are not awarded based on measurable criteria, some states have enacted laws which place caps on the amount of non-economic damages that can be awarded. Coverage under most liability policies is triggered by a demand for money damages. Insurance policies typically do not respond to suits asking for injunctions, temporary restraining orders or other types of non-monetary relief. Verdict forms may list the components of the damages or just give the grand total of the damages. In the end, damages that fall within your policy's limits will most likely be paid by the insurance carrier.

The other type of damages is punitive damages. These are damages which are intended to punish the wrong-doer and act as a general deterrent to the behavior in question. In some jurisdictions, these are known as exemplary damages. There must be a finding of compensatory damages first, even if only a nominal amount, in order for punitive damages to be awarded. In most cases, some sort of willful and/or malicious conduct must have occurred to allow the awarding of punitive damages. This is a pretty high standard, so you don't see punitive damages awarded in the majority of prescription mis-fill cases. However, in those cases where they are awarded, the sums can be quite large.[1]

Another consideration for punitive damages is that they may not be covered by insurance. States have taken many different approaches to this question. In a number of states, by law, punitive damages cannot be paid by insurance coverage. In a half dozen other states, they may be paid for negligent behavior, but cannot be paid for intentional behavior. In another handful of states, punitive damages can be paid by insurance except in cases involving uninsured motorist or underinsured motorist coverage. These situations reflect a belief that the individual's behavior won't be changed if the costs are paid by insurance. In the majority of states that are left, the cases will turn on the language of the insurance policy involved. The policy may explicitly include coverage for punitive damages or may specifically exclude them. As you can see, insurance coverage for punitive damages is dependent on fact-specific and location-specific issues. Fortunately, punitive damages are not routinely awarded in pharmacy cases.

At the end of the long litigation process, the jury may award damages to a deserving plaintiff and these damages can take a number of different forms. It is essential to consider the possibility of damages being awarded, and the potential types of those damages, as each decision is made whether to continue to move the case forward or look for a possible settlement.

© Don R. McGuire Jr., R.Ph., J.D., is General Counsel at Pharmacists Mutual Insurance Company.

This article discusses general principles of law and risk management. It is not intended as legal advice. Pharmacists should consult their own attorneys and insurance companies for specific advice. Pharmacists should be familiar with policies and procedures of their employers and insurance companies, and act accordingly.

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[1] e.g., Hundley v. Rite Aid of South Carolina, Inc. & Howard Jones, 339 S.C. 285, 529 S.E.2d 45 (Ct. App., 2000) – the total award in this case was $5,020,000 in compensatory damages and $11 million in punitive damages

Welcome to our *newest* members!

Michele Leonardi
Scott Morrissey
Miriam Peters
U. Robert Whalen

63 student pharmacists from Notre Dame of Maryland University School of Pharmacy
69 student pharmacists from University of Maryland School of Pharmacy

MPhA

Stay Connected!
MarylandPharmacist.org

We've Launched!

marylandpharmacist.org

New features!

- Online registration now available – **MPhA/MD-ASCP Mid-Year Meeting, Sunday, February 10**
- Join/Renew online
- Calendar of Events – Register, pay and immediately receive your receipt
- Create/customize your profile
- Easy navigation and enhanced resources for our members
- More sponsor visibility with our rotating sponsor carousel

MPhA
MARYLAND PHARMACISTS ASSOCIATION

2nd Annual Medication Therapy Management Summit

MPhA kicked off American Pharmacists Month with the Second Annual MTM Summit at its Montgomery Park Headquarters in October. This year's two-day event featured speakers who provided their valuable expertise on various MTM models, legislative issues, and a range of other MTM topics.

Featured guest speaker Linda Strand, PharmD, PhD, DSc (Hon), hosted a three-hour thought-provoking workshop that according to student pharmacist Jane Kim "challenged everyone in the room to rethink the way we think about our profession". In addition to the many distinguished speakers, attendees enjoyed the opportunity to network and catch up with colleagues during a networking reception on Saturday evening that featured a poster contest and raffle. Proceeds from the raffle went to support the MPhA Foundation.

SAVE THE DATE!
2013 MTM Summit
September 29/30!

Moderator Jennifer Thomas, PharmD with MTM presenters: Kathie Baldwin, BA, MS, HCA candidate; Susan Morikawa, PharmD, BCPS; Yolanda McKoy-Beach, PharmD, CDE; Jamie Montgomery RPh, BCPP; Faramarz Zarfeshan, RPh, and John Motsko, RPh, CDE

PharmD Candidates Jane Kim, Christina Louie

Thank you to our Second Annual MTM Summit Partners

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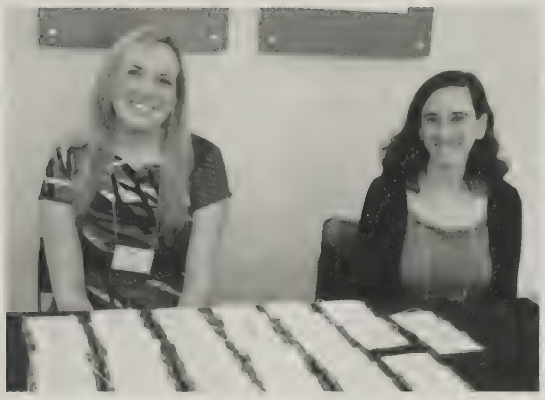


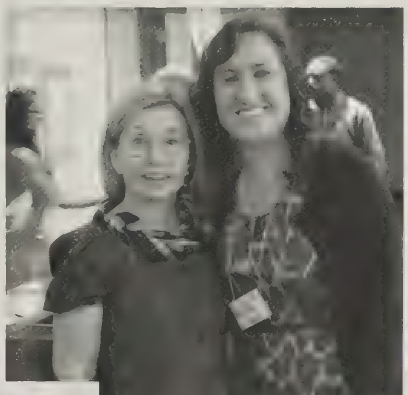
Kristen Dominik and Amy Nathanson at the registration table

Arnie Clayman representing MD-ASCP

Featured guest speaker Linda Strand, PhD, DSc (Hon) challenged pharmacist to, "rethink the way we think about our profession" during her workshop on Sunday.

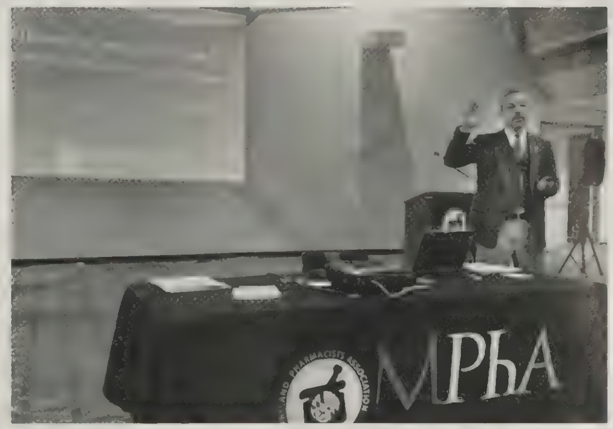
Professional Development Committee Co-chair Hoai-An Truong with Rosemary Botchway, Jim Bresette (back row), Tanya Truong

MPhA Foundation President Cynthia Boyle, Wayne VanWie, and Chairman Neil Leikach



Doris Voigt, with Professional Development Co-chair Kristen Fink

Rodney Taylor, Jason Noel have a chance to catch up during the Summit.



Speaker Brian Gallaher, RPh, JD, APhA Senior Vice President Government Affairs

Special thanks to all members of the MPhA Professional Development Committee, co-chaired by Hoai-An Truong, PharmD, MPH, and Kristen Fink, PharmD, and to the many student pharmacist volunteers from the three schools of pharmacy who contributed to the success of this year's event.

Kathleen Pincus, PharmD, BCPS
Assistant Professor University of Maryland School of Pharmacy
Baltimore, Maryland

An Update

INCRETIN-BASED THERAPIES IN DIABETES MANAGEMENT:

ARE THE ROLES OF GLUCAGON-LIKE PEPTIDE RECEPTOR AGONISTS AND DIPEPTIDYL PEPTIDASE-4 INHIBITORS EXPANDING?

The National Institutes of Health estimate 26 million Americans (8% of the US population) are living with either diagnosed or undiagnosed diabetes.[1] More than half of patients with known diabetes have not achieved a therapeutic A1c value.[2] Thus, it is important that health care professionals be knowledgeable about the treatment options for the management of diabetes mellitus. Incretin-based therapies, which include glucagon-like peptide (GLP) receptor agonists and dipeptidyl peptidase-4 (DPP-4) inhibitors, constitute a relatively new class of antidiabetic drugs and are generating much interest regarding their role in the management of diabetes. Prior reviews focus on the pharmacology and approved uses of these agents.[3] This update focuses on recent data highlighting patient populations where the role of incretin-based therapies have the potential for expansion.

LEARNING OBJECTIVE: [illegible]

- [illegible] dipeptidyl peptidase-4 inhibitors
- [illegible]
- [illegible]

BACKGROUND

Under normal conditions, GLP and gastric inhibitory polypeptide (GIP) are released from the gastrointestinal tract in response to a meal and then quickly inactivated by the DPP-4 enzyme. DPP-4 inhibitors block the degradation of these hormones resulting in extended exposure to physiologic concentrations. GLP receptor agonists work to mimic the actions of GLP at receptor sites and are not easily degraded by enzymes including DPP-4 resulting in pharmacologic concentrations. GLP receptors are located on many organs and therefore have many actions. But, the effects of increasing insulin secretion and decreasing glucagon secretion in response to a meal, along with delaying gastric emptying time are of most interest in diabetic therapy.[4–6]

There are currently two GLP receptor agonists (exenatide [Byetta®][7] 2005, [Bydureon®][8] 2012), and liraglutide [Victoza®][9] 2010) and three DPP-4 inhibitors (sitagliptin [Januvia®][10] 2006; saxagliptin [Onglyza®][11] 2009 and vildagliptin [Tradjenta®][12] 2011) approved for use in the United States. Both of the available GLP receptor agonists are administered by subcutaneous injection and available as pre-filled multidose pens. Exenatide (Byetta®) should be administered twice a day within 60 minutes prior to the two main meals of the day, while liraglutide is administered once daily independent of meals.[7,8] Extended-release exenatide (Bydureon®) utilizes microsphere technology and is dosed once weekly. To use this formulation, patients must mix the supplied powder with diluent in prefilled syringes before injection.[8] The three DPP-4 inhibitors are given orally once daily independent of meals.[10–12]

Because these agents act in response to a meal or glucose load, the risk of hypoglycemia when used as monotherapy is low. However the risk of hypoglycemia conferred by insulin or insulin secretogogues (e.g., insulin or gliptins) is increased when these agents are added and empiric dose reduction of the hypoglycemic agent is recommended. Gastrointestinal side effects including nausea, vomiting and diarrhea are common with these agents, and are more severe with GLP receptor agonists than DPP-4 inhibitors. Dose titration, use of antiemetic agents and separation of doses from meals are strategies to help alleviate these symptoms. The association between the use of incretin based therapies and the incidence of pancreatitis is still unclear and the focus of much interest. Liraglutide and exenatide also carry a black box warning for the risk of thyroid cancer due to findings of animal studies. Since the DPP-4 enzyme is also found on the surface of lymphocytes it should be noted that DPP-4 inhibitors may lead to an increased risk of infection.[7–12]

Currently, all five FDA approved incretin-based agents are indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus (T2DM). The labeling for all of these agents also states that they should not be used in patients with type 1 diabetes mellitus (T1DM) or diabetic ketoacidosis and that they have not been studied in patients with a history of pancreatitis. The labeling for exenatide, liraglutide and linagliptin also specifically state that these agents have not been studied in combination with insulin.[7–12]

INSULIN COMBINATION THERAPY

While regulatory studies did not include patients on insulin therapy, post-marketing studies have begun to investigate the use of GLP receptor agonists in combination with insulin. One study with liraglutide and insulin detemir aimed to see if the pharmacokinetic or pharmacodynamics characteristics of either drug were altered when given in combination. Pharmacokinetic and pharmacodynamic data from 33 insulin naïve patients with T2DM was obtained utilizing a euglycemic lock technique at three time points: after administration of a single dose of insulin detemir following a 3 week washout period, after a 3 week dose titration of liraglutide to 1.8 mg daily and after a single dose of insulin detemir given following 2 weeks of maintenance liraglutide. The authors concluded that co-administration of liraglutide and insulin detemir produces an additive glucose-lowering effect, and does not alter the pharmacokinetics of either agent. Limitations to this study include small sample size, lack of long-term data and the possibility of sequence bias. Still, the results are promising as no major interaction between the two agents was demonstrated.[13]

> "The authors concluded that co-administration of liraglutide and insulin detemir produces an additive glucose-lowering effect, and does not alter the pharmacokinetics of either agent."

A 30-week parallel, randomized, multicenter placebo-controlled trial evaluated the effect of insulin glargine plus either exenatide 10 mcg or placebo subcutaneously twice daily on efficacy and safety outcomes. The study included 259 adult patients with T2DM and A1c between 7.1 and 10.5% who were receiving insulin glargine alone or in combination with metformin or pioglitazone. Patients were excluded if they had experienced major hypoglycemia in the six months prior to enrollment or had a history of pancreatitis. Patients were well matched between groups in terms of age, duration of diabetes, body mass index, baseline A1c, total daily dose of insulin, and baseline fasting plasma glucose. However there was a significant difference in pre-study diabetic therapy between groups with more patients in the placebo group using metformin monotherapy and more patients in the exenatide group using the combination of metformin plus pioglitazone.[14]

This study found that use of exenatide produced significantly greater A1c reduction (1.74% exenatide group vs. 1.04% placebo group, $p<0.001$), weight loss (-1.8 kg exenatide group vs. +1.0 kg placebo group, $p<0.001$), and a higher percentage of patients achieving A1c $< 7\%$ (60% exenatide group vs. 35% placebo group, $p<0.001$). The postprandial glucose measurements were also significantly lower in the exenatide group after the morning (-2.0 mmol/L exenatide group vs. -0.2 mmol/L placebo group, $p<0.001$) and evening meals (-1.6 mmol/L exenatide group vs. 0.1 mmol/L placebo group, $p<0.001$), but not after the midday meal (-0.5 mmol/L exenatide group vs. -0.2 mmol/L placebo group, $p=0.320$). The rates of hypoglycemic events was similar between groups (1.4 events/participant/year exenatide group vs. 1.2 events/participant/year placebo group, $p=0.49$), but the discontinuations due to adverse events, mainly gastrointestinal symptoms and headache, were significantly higher in the exenatide group (13 vs. 1, $p<0.01$). The authors concluded that adding twice daily exenatide injections improved glycemic control without increased hypoglycemia or weight gain in participants with uncontrolled T2DM receiving insulin glargine therapy.[14]

This raises the therapeutic question: why add exenatide to insulin glargine therapy instead of bolus insulin? Some patient-related variables may make exenatide an attractive option even though both therapies require multiple daily injections. For patients with hypoglycemic unawareness or who experience frequent hypoglycemic events with bolus insulin, exenatide may be a reasonable alternative. In cases where weight gain would be particularly detrimental, exenatide may be advantageous since it is associated with modest weight loss, approximately 1.8 kg (4 lbs) in this study. Also, while exenatide requires twice daily injections, there may be the advantage of limiting injections with liraglutide that is only administered once daily or extended-release exenatide which would be administered once a week. When considering the addition of a GLP receptor agonist to insulin therapy, it is important to remember that empiric dose reduction of insulin is recommended.

TYPE 1 DIABETES MELLITUS

Use of incretin-based agents in patients with T1DM is not currently an FDA approved indication; in fact it is stated as a limitation of use. However, data for use of these agents in T1DM is emerging. Given the differences in pathophysiology between T1DM and T2DM use of agents, including incretin-based therapies, which stimulate insulin secretion from functional pancreatic beta cells may be less efficacious in T1DM. Single use studies with GLP-1 infusions date back to 1995 before the current incretin-based therapies were available. Prior studies with GLP receptor agonists have found that much lower doses are required for patients with T1DM than those for patients with T2DM. They have also proposed that the effect in patients with T1DM is unlikely to be due to changes in in insulin secretion and more likely to be a result of delayed gastric emptying time.[14,15]

A recent exenatide dose-finding study was performed in eight otherwise healthy patients with T1DM between the ages of 13 and 22 years using insulin monotherapy at baseline. Blood glucose levels were measured for 300 minutes after a meal on three occasions in random order: after receiving (a) insulin monotherapy, (b) insulin with exenatide 1.25 mcg, and (3) insulin with exenatide 2.5 mcg. Prandial insulin dose was reduced by 20% when exenatide was given. It was demonstrated that post-prandial glucose levels were significantly reduced with the administration of either dose of exenatide compared to insulin alone ($p>0.0001$), with no appreciable difference in effect between the two doses. It was also shown that gastric emptying time, measured by CO2 breath test, was delayed with either dose of exenatide ($p<0.004$ 1.25 mcg, <0.001 2.5 mcg). The effects were independent of insulin, measured by c-peptide concentration ($p<0.1$), or glucagon production ($p<0.06$). Two subjects reported nausea without emesis. And one subject had hypoglycemia at the onset of the study which worsened with administration of exenatide and required glucose bolus. The authors concluded that exenatide reduces postprandial hyperglycemia in adolescents with T1DM and may represent a therapeutic potential.[17]

Again the therapeutic question is: why use exenatide in patients with T1DM, who already require insulin therapy? Some potential scenarios where GLP receptor agonists may be considered include patients with uncontrolled post-prandial glucose despite optimization of insulin therapy, patients with difficulty titrating bolus insulin dosage and patients with frequent episodes of hypoglycemia. However, additional study is needed before GLP receptor agonists should be recommended for patients with T1DM in practice.

GERIATRIC PATIENTS

The population of patients >65 years with T2DM is increasing.[2] Management of these patients poses unique risks including increased risk for drug-drug interactions, alterations in pharmacokinetic and pharmacodynamics profiles, increased susceptibility to hypoglycemia and a decreased ability to self-manage hypoglycemic episodes. Therefore incretin-based therapies may be a

good option as they have a decreased risk of hypoglycemia and, other than saxagliptin, are not metabolized through the cytochrome P450 system. The potential of DPP-4 inhibitors to increase the risk of infection through a decrease in the absolute lymphocyte count should be considered, since infections may have a significant detrimental effect in elderly patients.

Pre-marketing studies for all five incretin-based therapies included patients over 65 years and over 75 years old, and concluded that there were no observed age-related differences in safety or effectiveness of these agents, though the number of some of these patient populations is quite low.[7–12] Liraglutide and linagliptin are not renally eliminated and do not require any renal dose adjustments.[9,12] Dose adjustments for sitagliptin and saxagliptin are recommended for patients with CrCl < 50 ml/min.[10,11] Saxaglpitin also forms an active metabolite which is renally cleared.[11] Use of exenatide is not recommended in patients with a CrCL < 30 ml/min.[7,8]

A pooled subgroup analysis of five randomized, double-blind, placebo-controlled, multicenter 24 week, phase 3 trials utilizing saxagliptin as monotherapy or add-on therapy was conducted to examine the efficacy of this agent in the elderly population. The analysis included 279 patients > 65 years old (16.6% of the total study population) and 23 patients >75 years old. Statistically significant differences between the cohort of patients > 65 and those < 65 included a higher percentage of older patients with a duration of diabetes longer than 10 years, a higher percentage of older patients with a CrCl < 80 ml/min and a lower percent of older patients with A1c > 8.0%. In patients > 65 years old, 24 weeks of saxagliptin use resulted in greater A1c lowering (-0.73% vs. -0.17%), a higher percentage of patients achieving A1c < 7% (44.9% vs. 16.9%), a lower incidence of hypoglycemia (6.3% vs. 8%) than placebo, with no difference in body weight change. Saxagliptin also lead to larger reductions from baseline in both fasting plasma glucose and post-prandial plasma glucose than placebo. There were no significant treatment-by-age interactions detected for changes in A1c, fasting plasma glucose or post-prandial plasma glucose. The most common adverse drug events seen in patients > 65 years included urinary tract infections, upper respiratory tract infections, nasopharyngitis, diarrhea and back pain.[18]

The population of patients > 65 years was a relatively small percentage of the overall population. There is also the possibility for selection bias since patients with elevated serum creatinine (>1.74 mg/dl male or >1.62 mg/dl female) as well as those with a left ventricular ejection fraction <40% or a cardiovascular event in the last 6 months were excluded, which may limit the generalizability of the findings. The ongoing GENERATION Study (NCT01006603) which compares saxagliptin to glimepiride in patients >65 years old with T2DM which is not controlled with metformin monotherapy may help elucidate the role of DPP-4 inhibitors in elderly patients. Until then, incretin-based therapies may be a reasonable therapeutic option keeping the principles of geriatric pharmacology in mind. It is prudent to start with lower doses and titrate slowly while continually monitoring for effect as well as adverse reactions, particularly the risk of infections (e.g. urinary tract infections and upper respiratory tract infections).

CONCLUSION

Incretin-based therapies are an important component of the anti-diabetic therapy armament. These therapies should be considered in patients with frequent hypoglycemic events, hypoglycemic unawareness, controlled fasting blood glucose, but uncontrolled post-prandial glucose levels, in patients when avoidance of weight gain is a high priority and when roughly a 1% reduction in A1c is desired. They may also be a reasonable option for patients older than 65 or with impaired renal function, particularly linagliptin or liraglutide. However, these therapies should be avoided in patients with a history of pancreatitis, gastroparesis, when greater than 1.5% reduction in A1c is needed, for the treatment of diabetic ketoacidosis or symptomatic hyperglycemia, in patients with inadequate oral intake, in patients with a history of recurrent infections (DPP-4 inhibitors), in patients with a personal or family history of medullary thyroid cancer or multiple endocrine neoplasia syndrome (GLP-1 agonists) or if CrCl is <30 ml/min (exenatide). Until more data is available these therapies should also not be recommended for patients with T1DM or in combination with insulin therapy.

REFERENCES

1. National Institutes of Health. National Diabetes Statistics, 2011. National Diabetes Information Clearinghouse. Feb 2011. Available from: < http://diabetes.niddk.nih.gov/dm/pubs/statistics/#fast>.
2. Koro CE, Bowlin SJ, Bourgeois N, Fedder DO. Glycemic control from 1988 to 2000 among US adults diagnosed with type 2 diabetes: a preliminary report. Diabetes Care 2004;27(1):17-20.
3. Distinguishing among incretin-based therapies. J Fam Prac 2010;59 (9 suppl 1):S3-S30.
4. Campbell RK, Cobble ME, Reid TS, Shomali ME. Glucose-lowering effects of incretin-based therapies. J Fam Prac 2010;59 (9 suppl 1):S10-S19.
5. Stephens JW, Bain S. The incretin system in the management of type 2 diabetes mellitus. Clinical Medicine 2010 (5):491-5.
6. Drab SR. Incretin-based therapies for type 2 diabetes mellitus: current status and future prospects. Pharmacotherapy 2010;30(6):609-624
7. Byetta (exenatide) injection [package insert]. Amylin Pharmaceuticals, Inc. San Diego, CA. Dec 2011.
8. Bydureon (exenatide extended-release for injectable suspension) [package insert]. Amylin Pharmaceuticals, Inc. San Diego, CA. Jan 2012.
9. Victoza (liraglutide) [package insert]. Novo Nordisk. Princeton, NJ. Dec 2010.
10. Januvia (sitapliptin) [package insert]. Merck & Co, Inc. Whitehouse Station, NJ. 2010.
11. Onglyza (saxagliptin). [package insert]. Bristol-Myers Squibb Company. Princeton, NJ. Feb 2011.
12. Tradjenta (linagliptin). [package insert]. Eli Lilly and Company. Indianapolis, IN. July 2011.
13. Morrow L, Hompesch M, Guthrie H, Change D, Chatterjee DJ. Co-administration of liraglutide with insulin detemir demonstrates additive pharmacodynamics effects with no pharmacokinetic interaction. Diabetes Obes Metab 2011;13:75-80.
14. Buse JB, Bergenstal RM, Glass LC, et al. Use of twice-daily exenatide in basal insulin-treated patietns with type 2 diabetes: a randomized controlled trial. Ann Intern Med 2011;154:103-12.
15. Dupre J, Behme MT, McDonald TJ. Exendin-4 normalized postcibal glycemic excursions in type 1 diabetes. J Clin Endocrinol Metab 2004;89:3469-3473.
16. Dupre J, Behme MT, Hramiak IM, et al. Glucagon-like peptide I reduces postprandial glycemic excursions in IDDM. Diabetes 1995;44:626-30.
17. Raman VS, Mason KJ, Rodriguez LM, et al. The role of adjunctive exenatide therapy in pediatric type 1 diabetes. Diabetes Care 2010;33:1294-6.
18. Douchet J, Chacra A, Maheux P, Lu J, Harris S, Rosenstock J. Efficacy and safety of saxagliptin in older patients with type 2 diabetes mellitus. Curr Med Res opin 2011;27:863-9.

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Did the article achieve the stated objectives?	Not at all	1	2	3	4	5	Completely
Overall evaluation of the article	Poor	1	2	3	4	5	Excellent
Was the information relevant to your practice?	No	1	2	3	4	5	Yes

How long did it take you to read the article and complete the exam? __________ (minutes)

1. **Glucagon like peptide (GLP) receptor agonists and dipeptidyl peptidase (DPP)-4 inhibitors act to lower blood glucose levels by:**
   a. Increasing amylin secretion
   b. Increasing insulin secretion
   c. Increasing gastrin secretion
   d. Increasing glucagon secretion

2. **The A1c lowering effect of GLP receptor agonists are:**
   a. Less robust than both alpha glucosidase inhibitors and sulfonylureas
   b. Less robust than alpha glucosidase inhibitors, but more robust than sulfonylureas
   c. More robust than both alpha glucosidase inhibitors and sulfonylureas
   d. More robust than alpha glucosidase inhibitors, but less robust than sulfonylureas

3. **Which of the following products is an injectable GLP receptor agonist that is available as a 6 mg/ml pre-filled multidose pen that should be administered once a day?**
   a. Exenatide
   b. Liraglutide
   c. Saxaglipitin
   d. Sitagliptin

4. **Which of the following incretin-based therapies does NOT undergo renal elimination?**
   a. Exenatide
   b. Liraglutide
   c. Saxagliptin
   d. Sitagliptin

5. **Which of the following patient populations is listed as a "limitation of use" in packaging for both exenatide and liraglutide, but emerging studies exist to support efficacy and safety of use?**
   a. Patients with poor glycemic control on sulfonylurea monotherapy
   b. Patients with a history of pancreatitis
   c. Patients with type 1 diabetes mellitus
   d. Patients with diabetic ketoacidosis

6. **Studies investigating the use of GLP agonists in combination with insulin have demonstrated which of the following?**
   a. The combination produces an additive glucose-lowering effect compared to either agent used alone
   b. The combination produces significantly more nausea and vomiting compared to either agent used alone
   c. The combination produces significantly more episodes of major hypoglycemia than the combination of insulin plus placebo
   d. There combination produces significantly more weight gain than the combination of insulin plus placebo

7. **The addition of exenatide to insulin therapy for treatment of type 2 diabetes mellitus may be a reasonable consideration for which of the following patients?**
   a. Patient with stage III renal impairment
   b. Patient with hypoglycemic unawareness
   c. Patient has fear of self-administering injections
   d. Patient with uncontrolled fasting blood glucose, but with post-prandial blood glucose readings at goal

8. **Which of the following statements accurately describes the proposed benefit of GLP receptor agonists in patients with type 1 diabetes mellitus?**
   a. Decrease fasting blood glucose by increasing insulin secretion
   b. Decrease fasting blood glucose by decreasing glucagon production
   c. Decrease post-prandial blood glucose by prolonging gastric emptying time
   d. Decrease post-prandial blood glucose by increasing C peptide concentration

9. **Published studies have established which of the following concepts regarding the use of GLP receptor agonists in patients with type 1 diabetes mellitus?**
   a. Prandial insulin doses should be increased with the addition of GLP receptor agonist
   b. Due to a high rate of hyperglycemia, GLP receptor agonists are not safe in patients with type 1 diabetes mellitus
   c. A lower dose of GLP receptor agonist is needed for effect in a patient with type 1 diabetes mellitus than that established for patients with type 2 diabetes mellitus
   d. Given the differences in pathophysiology between type 1 diabetes mellitus and type 2 diabetes mellitus, GLP receptor agonists confer no additional benefit in glycemic control for patients with type 1 diabetes mellitus

10. **Which of the following statements regarding current literature exploring the use of incretin-based therapy is true?**
    a. A pilot study of eight patients showed a reduction of post-prandial blood glucose with the addition of liraglutide to insulin monotherapy in patients with type 1 diabetes mellitus
    b. A randomized control trial demonstrated improved glycemic control with the addition of exenatide versus placebo in patients with type 2 diabetes mellitus treated with insulin glargine
    c. A pooled subgroup analysis of data in patients > 65 years from 5 randomized clinical trials with saxagliptin demonstrated no significant treatment-by-age interactions for changes in hemoglobin A1c, fasting plasma glucose or post-prandial glucose levels
    d. All of the above are true

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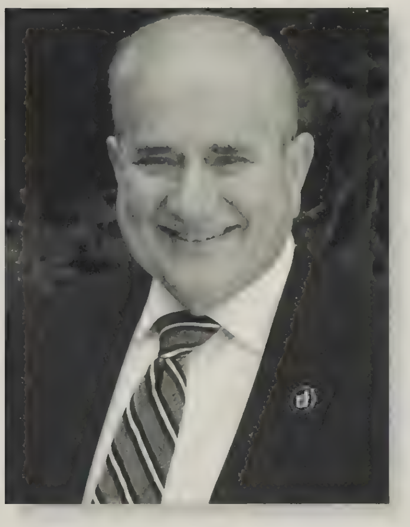

The fungal meningitis disaster is the worst case involving a drug and a pharmaceutical firm since the sulfanilamide cases in 1938 heralded in new safety rules for the FDA. As this article is written, there have been 36 deaths and 510 cases attributed to allegedly contaminated sterile steroids from the New England Compounding Center (NECC).

It's easy to blame NECC for their inexcusable conduct and the entire calamity could have been avoided if they followed USP 797 guidelines for sterile preparations. But they didn't — the first mistake in a series of missed opportunities and lack of oversight. FDA inspected the facility after the fact and found several infractions that included: air conditioning that had been turned off overnight in the clean rooms, elevated levels of bacteria, and mold and contamination in and around those clean rooms.

All of the blame cannot be put on NECC, however. They had been cited for violations repeatedly for nearly ten years but no action had been taken by the Massachusetts Board of Pharmacy —second mistake.

The FDA and state laws make a clear distinction between compounding (in its simplest form-preparing a preparation for an individual patient on a prescription from a prescriber) and manufacturing. NECC was not licensed as a manufacturer who must follow Good Manufacturing Practices (GMP) including those regula-tions for sterile preparations. NECC was allowed to continue shipping across state lines — third mistake.

Buyers took advantage of an inexpensive price for an injectable and thought they were getting a good deal. Maybe they reasoned, it was FDA approved and they could save a few extra dollars — fourth mistake.

Administrators reasoned insurers would not pay for brand drugs and thought these generics were equivalent; besides, there were constant shortages so get what drug you can while you can — fifth mistake.

The outcome of this terrible tragedy will be increased regulation and supervision from state and federal authorities. Translate this as more scrutiny, more reporting for pharmacies, more headaches for legitimate compounders, and more resources (money) needed by state and federal authorities. Perhaps now state governments will allow state boards of pharmacy to keep more of the fees raised from pharmacists, pharmacies, wholesalers, and distributors. All of which is little consolation to those infected and their family members whose lives have been forever changed.

> "Perhaps now state governments will allow state boards of pharmacy to keep more of the fees raised from pharmacists, pharmacies, wholesalers, and distributors."

Howard Schiff

Howard Schiff, PD, Executive Director
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